DEPARTMENT OF THE ARMY
Omaha District, Corps of Engineers
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Omaha, Nebraska 68102-1618

:NOTICE: Failure to acknowledge : :all amendments may cause rejec- : :tion of the bid. See FAR :52.214-3 of Section 00100 :	Solicitation No. W9128F 04 B 0011 Date of Issue: 8 JUL 2004 Date of Opening: 19 AUG 2004

Amendment No. 0003
9 August 2004

SUBJECT: Amendment No. 0003 to Specifications and Drawings for Construction of **ADAL Physical Fitness Center, Minot AFB, North Dakota**.

Solicitation No. W9128F 04 B 0011.
TO: Prospective Bidders and Others Concerned

1. The specifications and drawings for subject project are hereby modified as follows (revise all specification indices, attachment lists, and drawing indices accordingly).

a. Specifications. (Descriptive Changes.)

(1) Section 02220, Page 2, paragraph 1.2 GENERAL REQUIREMENTS, in the last sentence of this paragraph, delete "(in accordance with Section 01572 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT, if applicable; salvaged items and materials shall be disposed of as specified."

(2) Section 02564, Page 6, paragraph 1.8.2, change title from "Base Course, Aggregate Surface Course" to "Aggregate Base Course".

(3) Section 02630, Page 7, paragraph 3.2.1, Concrete Pipe Requirements, change first sentence to read "When no bedding class is specified or detailed on the drawings, concrete pipe shall be bedded in a soil foundation accurately shaped and rounded to conform to the lowest one-fourth of the outside portion of circular pipe for the entire length of the pipe."

(4) Section 02763A, Page 4, delete paragraph 2.2 PREFORMED TAPE in its entirety.

(5) Section 02763A, Page 4, delete paragraph 2.3 REFLECTIVE MEDIA in its entirety.

(6) Section 02763A, Page 6, delete paragraph 3.2.2 Reflective Media in its entirety.

(7) Section 06410A, Page 3, paragraph 1.1 REFERENCES, preceding "NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA), insert:

"CALIFORNIA BUREAU OF HOME FURNISHINGS AND THERMAL INSULATION"

Technical Bulletin 117	Requirements, Test Procedure and Apparatus for Testing the Flame Retardance of Resilient Filling Materials Used in Upholstered

Furniture".

(8) Section 06410A, Page 3, paragraph 1.1 REFERENCES, preceding "WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)", insert:

"NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 260 Standard Methods of Tests and Classification System for Cigarette Ignition Resistance of Components of Upholstered Furniture".

(9) Section 06410A, Page 3, paragraph 1.2 GENERAL DESCRIPTION, in the first sentence following "and cabinets", insert "and built-in wall bench".

(10) Section 06410A, Page 5, paragraph 1.3 SUBMITTALS, under "SD-04 Samples, preceding "Cabinet Hardware; G-AE", insert:

"Fabric; G-AE

Three samples of each type and color of fabric, each minimum 6 inches square".

(11) Section 06410A, Page 5, paragraph 1.4 QUALITY ASSURANCE, at the end of the paragraph add: "Contractors and their personnel engaged in the fabrication of the built-in wall bench shall be able to demonstrate a minimum of five years successful experience with similar work."

(12) Section 06410A, Page 8, paragraph 2.10 ACCESSORIES, following "ACCESSORIES" add "AND MISCELLANEOUS ITEMS".

(13) Section 06410A, Page 8, following paragraph 2.10.1 Grommets, add: "2.10.2 Foam for Built-in Bench

Foam shall meet the flammability requirements of Technical Bulletin 117 and NFPA 260. Foam for backs shall be 2 inches thick High Resiliency (HR) polyurethane foam with an Indentation Load Deflection (ILD) of 18 and a Density of 2.4. Foam for seats shall be 6 inches thick HR polyurethane foam with an ILD of 36 and a Density of 2.0.

2.10.3 Fabric for Built-in Bench

Fabric shall be 100 percent vinyl face with 100 percent polyester back and shall meet the flammability requirements of Technical Bulletin 117 and NFPA 260. Fabric shall exceed 100,000 double rubs when tested in accordance with the Wyzenbeek Test Method. Colors and patterns shall be in accordance with Section 09915 COLOR SCHEDULE."

(14) Section 06410A, Page 11, following paragraph 2.11.10.2 Coatings, add: "2.11.11 Built-in Wall Bench

Fabricate frame and support members from lumber and 3/4 inch medium density fiberboard (MDF) as indicated on the drawings. Form seats from Dacron cushion wrapped foam. Seams shall be centered or balanced on each section of bench. Seams shall be smooth and free from puckers or tucks. Corners shall be smooth, eased and free from puckers."

(15) Section 07600, Page 4, paragraph 1.3 SUBMITTALS, preceding SD-11 Closeout Submittals, add:

"SD-04 Samples

Color coating; G-AE

Submit samples of each color indicated."

(16) Section 08120, Page 5, paragraph 1.3 SUBMITTALS, preceding SD-07 Certificates, add:

"SD-04 Samples

Finishes; G-AE

Submit three samples minimum 3 inches by 4 inches showing extreme range of color and finish of each anodic coating specified."

(17) Section 08210, Page 3, paragraph 1.2 SUBMITTALS, under SD-04 Samples, change "Submit a minimum of three color selection samples." to "Submit a minimum of three color samples."

(18) Section 08331A, Page 3, paragraph 1.2 SUBMITTALS, under SD-04 Samples, following "painted finish" add "and anodized finish."

(19) Section 08710, Page 14 and 15, paragraph 3.6 HARDWARE SETS, delete Hardware Sets 24 and 25 in their entireties and insert:

"HW SET: 24

3	EA	HINGES	A5111 4.5 x 4.5	630	
1	EA	CLASSROOM LOCK		626	
1	EA	IC CYLINDER	AS REQUIRED	626	BES
1	EA	CLOSER	C02011 OR C02021	689	
1	EA	WALL STOP	L52101 OR L52251	630	
1	EA	SMOKE GASKET	ROE154 (BULB)	BLK	

HW SET: 25

3	EA	HINGES	A5111 4.5 X 4.5 NRP	630	
1	EA	CLASSROOM LOCK		626	
1	EA	IC CYLINDER	AS REQUIRED	626	BES
1	EA	CLOSER	TYPE C02021 W/STOP ARM	689	
1	EA	SMOKE GASKET	ROE 154 (BULB)	BLK"	

(20) Section 08710, Page 23, paragraph 3.6 HARDWARE SETS, following Hardware Set 66, add:

"HW SET: 67

6	EA	HINGES	A8112 4.5 X 4.5	652	
1	EA	FLUSHBOLTS	AUTOMATIC	626	
1	EA	DUSTPROOF STRIKE	WITH PLATE	626	
1	EA	STOREROOM LOCKSET	F07	626	
1	EA	IC CYLINDER	AS REQUIRED	626	BES
1	EA	ASTRAGAL	R3A634	628	
1	EA	SURFACE CLOSER	C02011 OR C02021	689	

2	EA	WALL STOP	L52101 OR L52251	630
2	EA	KICK PLATE	12" X 1" LDW .050 B4E	630
1	EA	SMOKE GASKET	R0E154 (BULB)	BRN"

(21) Section 08900, Page 6, paragraph 1.3 SUBMITTALS, preceding SD-05 Design Data, add:

"SD-04 Samples

Finish; G-AE

Submit three samples minimum 3 inches by 4 inches showing extreme range of color and finish of each anodic coating specified."

(22) Section 09310, Page 4, paragraph 1.2 SUBMITTALS, preceding SD-03, insert:

"SD-02 Shop Drawings

Installation; G-AE

Three copies of drawings indicating wall and floor tile patterns."

(23) Section 09310, Page 7, paragraph 2.4.2, change "ANSI A108.1; latex-portland cement grout" to "Modified epoxy grout; crosslink technology."

(24) Section 09310, Page 7, paragraph 3.3 INSTALLATION OF WALL TILE, change the title to "INSTALLATION OF WALL AND CEILING TILE".

(25) Section 09310, Page 7, paragraph 3.3 INSTALLATION OF WALL AND CEILING TILE, change "and SR614-03 for steam rooms" to "and wall and ceiling tile shall be installed in accordance with SR614-03 for steam rooms. Framing and cementitious backer unit installation for steam room suspended ceilings shall be as specified in Section 09200A LATHING AND PLASTERING."

(26) Section 09310, Page 8, paragraph 3.4.3, change "ANSI A108.1" to ANSI A1.08.6".

(27) Section 09650, Page 2, paragraph 1.1 REFERENCES, under "ASTM INTERNATIONAL (ASTM)", insert:

"ASTM D 395 (1998) Standard Test Methods for Rubber Property – Compression Set

ASTM D 2047 (1993) Standard Test Method for Static Coefficient of Friction of Polish-coated Floor Surfaces as Measured by the James Machine

ASTM D 2240 (1997) Standard Test Method for Rubber Property – Durometer Hardness"

(28) Section 09650, Page 5, following paragraph 2.10, add: "2.11 RECYCLED RUBBER FLOORING, STRAIGHT EDGE MAT RBR-1

Recycled rubber flooring straight edge mat shall be composed of recycled

tire rubber granules SBR (styrene-butadlene rubber) and colored EPDM (ethylene-propylene diene monomer), and shall be 38 inches square and 6 mm thick, weighing 1.5 pounds per square foot. Shore hardness shall be 65 when tested in accordance with ASTM D 2240; compression shall be 9.7 percent when tested in accordance with ASTM D 395; and coefficient of friction shall be 1.04 dry and 1.05 wet when tested in accordance with ASTM D 2047, James test method.

2.12 RECYCLED RUBBER FLOORING, INTERLOCK MAT RBR-2

Recycled rubber flooring interlocking mat shall be composed of colored EPDM (ethylene-propylene diene monomer), and shall be 37 inches square and 10 mm thick, weighting 2.5 pounds per square foot. Shore hardness shall be 65 when tested in accordance with ASTM D 2240; compression shall be 9.7 percent when tested in accordance with ASTM D 395; and coefficient of friction shall be 1.04 dry and 1.05 wet when tested in accordance with ASTM D 2047, James test method."

(29) Section 09650, Page 7, following paragraph 3.10, add:
"3.11 PLACING RECYCLED RUBBER FLOORING

Recycled rubber flooring shall be loose-laid in accordance with manufacturer's instructions. Tile lines and joints shall be kept square, symmetrical, tight, and even. Edge width shall vary as necessary to maintain full-size tiles in the field, but no edge tile shall be less than one-half the field tile size, except where irregular shaped rooms make it impossible. Flooring shall be cut to, and fitted around, all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Edge tile shall be cut, fitted, and scribed to walls and partitions after field flooring has been applied."

(30) Section 09680, Page 5, paragraph 2.1.1.1 BROADLOOM CARPET CPT-1, under paragraph d., following "J & J Encore Type 6 Nylon" add "or equal".

(31) Section 09680, Page 6, paragraph 2.1.1.1 BROADLOOM CARPET CPT-1, under paragraph i., following "Colorloc" add "or equal".

(32) Section 09680, Page 6, paragraph 2.1.1.1 BROADLOOM CARPET CPT-1, under paragraph l., following "Actionbac" add "or equal".

(33) Section 09680, Page 6, paragraph 2.1.1.2 ENTRANCE MODULAR TILE CARPET CPT-2, under paragraph d., following "Dupont nylon 6,6" add "or equal".

(34) Section 09680, Page 6, paragraph 2.1.1.2 ENTRANCE MODULAR TILE CARPET CPT-2, under paragraph j., following "Integrated Cushion Thermabond" add "or equal".

(35) Section 09900, Page 17, paragraph 3.4.2 Gypsum Board, change title to "Gypsum Board and Plaster".

(36) Section 09900, Page 17, paragraph 3.4.2 Gypsum Board, under subparagraph a., following "Surface Cleaning:", insert "Plaster shall be clean and free of loose matter."

(37) Section 09900, Page 17, paragraph 3.4.2 Gypsum Board, at the end of subparagraph c., add: " New plaster to be coated shall have a maximum

moisture content of 8 percent, when measured in accordance with ASTM D 4444, Method A, unless otherwise authorized. In addition to moisture content requirements, allow new plaster to age a minimum of 30 days before preparation for painting."

(38) Section 09900, Page 20, paragraph 3.7 COATING SYSTEMS FOR METAL, following subparagraph f., add:

"g. Water-based Polyurethane Metallic Coating System: Spray application shall be in accordance with manufacturer's printed recommendations. Apply in 4 to 5 light passes, slowly building up finish. Wait until previous pass is dry to the touch before spraying next pass."

(39) Section 09900, Page 24, paragraph 3.12.2 INTERIOR PAINT TABLES, under DIVISION 5, following Paragraph C.1, add:

"D. Metal handrails and guardrails in Gymnasium and Lobby not otherwise specified:

1. Water-based polyurethane/acrylic metallic paint finish system (Satin Finish)

Master Coating Technologies (MCT) Scuffmaster Architectural Finishes, SOLID METAL™ or equal.

Water-based Bonding Primer: As recommended by metallic base coat manufacturer.

Metallic Base Coat: Scuffmaster MC2000 water-based polyurethane/acrylic base coat and crosslinker or equal.

Clear Coat: Scufffmaster Ultra-Clear Satin water-based polyurethane protective clear coat or equal.

System DFT: per manufacturer

Provide satin finish.

INTERIOR GALVANIZED SURFACES

E. Galvanized ductwork in Gymnasium:

1. Alkyd

MPI INT 5.3L (Semigloss)

Primer:	Intermediate:	Topcoat:
MPI 135	MPI 47	MPI 47

INTERIOR SURFACES/OTHER METALS (NON-FERROUS)

F. Aluminum, aluminum alloy ductwork and accessories in pool:

1. Vinyl Wash Primer/Polyurethane Topcoat

MPI INT 5.4C (Gloss)

Primer:	Intermediate:	Topcoat:
MPI 80	MPI 77	MPI 72

Provide gloss finish."

(40) Section 09900, Page 24, paragraph 3.12.2 INTERIOR PAINT TABLES, under DIVISION 9: INTERIOR PLASTER, GYPSUM BOARD, TEXTURED SURFACES PAINT TABLE, under subparagraph A, following "Wallboard" add "and plaster surfaces".

(41) Section 09900, Page 24, paragraph 3.12.2 INTERIOR PAINT TABLES, under DIVISION 9: INTERIOR PLASTER, GYPSUM BOARD, TEXTURED SURFACES PAINT TABLE, under subparagraph B, following "Wallboard" add "and plaster surfaces".

(42) Section 09915, Page 4, paragraph 2.2.1.4 Metal Wall Panels, Hardware and Associated Trim, delete "Centria, Color: Champagne Bronze #9948" and insert:

"Composite Metal Panels MP-1: Alucobond, Champagne Anodized
Wall panels indicated to match existing: Match existing vertical wall panel color.
Insulated wall panels: Match existing vertical wall panel color. "

(43) Section 09915, Page 5, paragraph 2.2.2.8 Caulking and Sealants, delete "[_____]" and insert "As indicated in Section 07920."

(44) Section 09915, Page 7, paragraph 2.2.6.4 Prefaced Concrete Masonry Units, delete "[_____]" and insert "Not Used".

(45) Section 09915, Page 8, paragraph 2.2.7.1, Acoustical Tile and Grid, following "ACT-3", insert "ACT-4: Armstrong Tundra, Medium Texture".

(46) Section 09915, Page 8, paragraph 2.2.7.3 Metal Deck, delete "[_____]" and insert "PNT-1: Martin Senour, Color: Down Pillow #9-7 (WW)".

(47) Section 09915, Page 8, paragraph 2.2.7.4 Structural Framing, delete "[_____]" and insert "PNT-1: Martin Senour, Color: Down Pillow #9-7 (WW)".

(48) Section 09915, Page 8 following paragraph 2.2.7.4 Structural Framing add: "2.2.7.5 Synthetic Finish:
Match PNT-1: Martin Senour, Color Down Pillow #9-7 (WW)".

(49) Section 09915, Page 8 paragraph 2.2.8.9 Handrails, change "Handrails" to "Handrails and Guardrails".

(50) Section 09915, Page 8 paragraph 2.2.8.9 Handrails, following PNT-4, change "(Lobby, Gym handrails)" to "(Lobby, Gym handrails and guardrails)".

(51) Section 09915, Page 9, paragraph 2.2.8.12 Exposed Ductwork, delete "[_____]" and insert "At Pool: Match existing wall neutral. At Gym: PNT-4; Martin Senour, Color: Bluechip #116-5".

(52) Section 09915, Page 9, following paragraph 2.2.8.12 Exposed Ductwork, insert:

"2.2.8.13 Wood Trim (Room 132A)
Red Oak, clear finish, plain sliced to match wood doors.

2.2.8.14 FRP Doors and Frames
Corian Company, Color: Gray AG-71275; Finish: Matte".

(53) Section 09915, Page 9, paragraph 2.2.10.1 Toilet Partitions and Urinal Screens, change paragraph title to "Toilet Partitions, Urinal Screens and Shower Stall Doors".

(54) Section 09915, Page 10, paragraph 2.2.10.9 Visual Display Boards, add: "VWC-3: Maharam, Pattern: Tek-Wall® Lux 306201, Color: 024 Particle".

(55) Section 09915, Page 10, paragraph 2.2.10.16 Shower Doors, delete "[_____]" and insert "Not Used".

(56) Section 09915, Page 10, paragraph 2.2.10.17 Fabric for Juice Bar Banquette Seating, delete "FAB-1: ArcCom . . . Finish: "Crypton" in its entirety and insert in its place:

"FAB-1: Arc-Com, Pattern: Silverado AC-67667; Color: Nickel #18
FAB-2: Arc-Com, Pattern: Silverado AC-67667; Color: Misty #8"

(57) Section 09915, Page 10, following paragraph 2.2.10.17, add:

"2.2.10.18 Gym Curtain
Opaque Fabric: Porter Flexiride, Color: Light Blue
Mesh: Porter Fleximesh, Color: Gray"

(58) Section 10100A, Page 2, paragraph 1.2 GENERAL REQUIREMENTS, following "includes flexible dry-erase writing surface" add "and tack boards".

(59) Section 10100A, Page 2, paragraph 1.3 SUBMITTALS, under SD-04 Samples, change "Flexible Dry-Erase Surface" to "Materials; G-AE" and insert: "Section of core material showing the lamination of natural cork, backer, and vinyl wall covering."

(60) Section 10100A, Page 3, following paragraph 2.2.2 Aluminum, add: "2.2.3 Cork

Cork shall be a continuous resilient sheet made from soft, clean, granulated cork relatively free from hardback and dust and bonded with a binder suitable for the purpose intended. The wearing surface shall be free from streaks, spots, cracks or other imperfections that would impair its usefulness. The material shall be seasoned, and a clean cut made not less than 1/2 inch from the edge shall show no evidence of soft sticky binder.

2.2.3.1 Natural Cork

Material shall be a single layer of pure grain natural cork without backing or facing. The color shall be light tan. The cork sheet shall have a tensile strength of not less than 40 psi when tested in accordance with ASTM F 152.

2.2.4 Vinyl Wall Covering

Vinyl wall covering shall be 80 percent polylefin and 20 percent coated fiberglass with an acrylic backing. Vinyl wall covering shall have a Class A flame spread rating of 0-50 and smoke development rating of 0-450 in accordance with ASTM E 84."

(61) Section 10100A, Page 3, following paragraph 2.3 FLEXIBLE DRY-ERASE WRITING SURFACE, add:

"2.4 TACKBOARDS

Tackboard shall have a vinyl wall covering laminated to a minimum 1/4 inch thick cork laminated to a minimum 3/8 inch thick insulation board or fiberboard and shall be edge wrapped. The size shall be as shown in the drawings."

(62) Section 10100A, Page 4, paragraph 3.1, INSTALLATION, delete the sentence "Concealed fasteners shall be used." and insert: "Concealed fasteners shall be used to fasten flexible dry-erase writing surface aluminum frame and trim. Adhesive as recommended by manufacturer shall be used to attach flexible dry-erase surfaces and tackboards."

(63) Section 10153, Page 2, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, following "Toilet Partition System; G-AE" add "Shower Stall Doors; G-AE".

(64) Section 10153, Page 3, paragraph 1.3 SYSTEM DESCRIPTION, following "including toilet enclosures" insert ", shower stall doors,".

(65) Section 10153, Page 3, paragraph 2.1 TOILET ENCLOSURES, at the end of Paragraph 2.1, add:

"2.1.1 Shower Stall Doors

Shower stall doors shall be floor mounted and overhead braced or wall supported as indicated on drawings. Materials and construction shall match that of toilet enclosures."

(66) Section 10153, Page 6, paragraph 3.1 INSTALLATION, following "Toilet partitions" add "including shower stall doors and urinal screens".

(67) Section 10650A, Page 4, paragraph 2.1.1 Panel Surface Finish, following "Sides Facing Rooms 198A and 198B", change "surfaed" to "surfaced"; following "vinyl wall covering material", insert "(VWC-2)"; and change "Section 0915" to "Section 09915".

(68) Section 11480, Page 2, paragraph 1.1 SUBMITTALS, preceding SD-10 Operations and Maintenance Data, add:

"SD-04 Samples

Opaque Fabric; G-AE
Mesh; G-AE

Submit three pieces, 6 inches by 6 inches minimum, of each fabric and mesh."

(69) Section 13110A, Page 4, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, change "Equipment; G-AE" to "Equipment".

(70) Section 13110A, Page 4, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "Spare Parts" and the paragraph following "Spare Parts."

(71) Section 13110A, Page 5, paragraph 1.2 SUBMITTALS, under SD-10 Operation and Maintenance Data, change "Cathodic Protection System; G-AO" to "Cathodic Protection System".

(72) Section 13110A, Page 6, paragraph 1.2 SUBMITTALS, under SD-10 Operation and Maintenance, change "Training Course; G-AO" to "Training Course".

(73) Section 13851A, Page 5, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, in the paragraph following "Special Tools and Spare Parts; G-RE"

change the second sentence to read "Data shall include source of supply recommended by the manufacturer."

(74) Section 13851A, Page 5, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "Technical Data and Computer Software; G-AE" and delete "Technical data which relates to computer software."

(75) Section 13851A, Page 5, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, change "Testing; G-AE" to "Testing; G-AO".

(76) Section 13851A, Page 5, paragraph 1.2 SUBMITTALS, under SD-06 Test Reports, change "Testing; G-AE" to "Testing; G-AO".

(77) Section 13851A, Page 6, paragraph 1.2 SUBMITTALS, under SD-10 Operation and Maintenance Data, paragraph following "Technical Data and Computer Software; G-RE" delete last sentence "Manuals shall be approved prior to training."

(78) Section 13920A, Page 4 , paragraph 1.2 SUBMITTALS, under SD-02 Shop Drawings, delete "Installation Requirements; G-AO" and delete "Three copies . . . thru paragraph f. . . .of each controller."

(79) Section 13920A, Page 5, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "Fire Pump Installation Related Submittals" and delete "A list . . . Representative".

(80) Section 13920A, Page 6, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "G-AO" from "Manufacturer's Representative".

(81) Section 13930A, Page 8, paragraph 1.6 SUBMITTALS, under SD-03 Product Data, delete "Fire Protection Related Submittals" and delete "A list of . . . Protection Specialist".

(82) Section 13930A, Page 9, paragraph 1.6 SUBMITTALS, under SD-03 Product Data, delete "ON-site Training; G-AO" and delete "Proposed procedures for . . . related training".

(83) Section 13930A, Page 9, paragraph 1.6 SUBMITTALS, under SD-07 Certificates, delete "G-AO" from "Inspection by Fire Protection Specialist".

(84) Section 15080A, Page 6, paragraph 1.4 SUBMITTALS, under SD-02 Shop Drawings, delete "G-AO" from "Mica Plates".

(85) Section 15182, Page 6, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "G-AO" from "Refrigerant Piping Tests".

(86) Section 15182, Page 6, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "Demonstrations; G-AO" and delete "A schedule, . . . for the training".

(87) Section 15182, Page 6, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "Verification of Dimensions" and delete "A letter, . . . any discrepancies found".

(88) Section 15182, Page 7, paragraph 1.2 SUBMITTALS, delete "SD-07 Certificates" in its entirety.

(89) Section 15190A, Page 4, paragraph 1.2 SUBMITTALS, delete "SD-02 Shop Drawings" in its entirety.

(90) Section 15400A, Page 13, paragraph 1.2 SUBMITTALS, delete "SD-02 Shop Drawings" in its entirety.

(91) Section 15400A, Page 14, paragraph 1.2 SUBMITTALS, under SD-06 Test Reports, delete "G-AO" from "Test of Backflow Prevention Assemblies".

(92) Section 15400A, Page 14, paragraph 1.2 SUBMITTALS, under SD-07 Certificates, delete "Bolts" and delete "Written certification . . . on this certification".

(93) Section 15556A, Page 7, paragraph 1.2 SUBMITTALS, delete "SD-02 Shop Drawings" in its entirety.

(94) Section 15700A, Page 5, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete Verification of Dimensions" and delete "A letter, at . . . discrepancies found".

(95) Section 15700A, Page 6, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "Demonstrations; G-AO" and "delete A schedule, . . . for the training".

(96) Section 15700A, Page 7, paragraph 1.2 SUBMITTALS, under SD-07 Certificates, delete "Service Organization" and delete "A certified list . . . of the contract".

(97) Section 15895, Page 7, paragraph 1.5 SUBMITTALS, delete SD-02 Shop Drawings" in its entirety.

(98) Section 15895, Page 7, paragraph 1.5 SUBMITTALS, under SD-03 Product Data, delete "G-AO" from "Test Procedures".

(99) Section 15895, Page 8, paragraph 1.5 SUBMITTALS, under SD-03 Product Data, delete "Manufacturer's Experience" and delete "Statement demonstrating . . . by this section".

(100) Section 15895, Page 8, paragraph 1.5 SUBMITTALS, under SD-03 Product Data, delete "Performance Tests; G-AO" and delete "Proposed Test . . . of related testing".

(101) Section 15895, Page 8, paragraph 1.5 SUBMITTALS, under SD-03 Product Data, delete "Field Training; G-AO" and delete "Proposed schedule for . . . of related training".

(102) Section 15951A, Page 11, paragraph 1.3 SUBMITTALS, under SD-03 Product Data, delete Service Organizations; G-AO" and delete "Six copies of a . . . telephone number".

(103) Section 15990A, Page 2, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "Tab Related HVAC Submittals; G-AO" and delete "A list of the . . . TAB Specialist".

(104) Section 15990A, Page 3, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "G-AO" from "Calibration".

(105) Section 15990A, Page 3, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "G-AO" from "Systems Readiness Check".

(106) Section 15990A, Page 3, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "G-AO" from TAB Execution".

(107) Section 15990A, Page 3, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "G-AO" from TAB Verification".

(108) Section 15990A, Page 4, paragraph 1.2 SUBMITTALS, under SD-07 Certificates, delete "G-AO" from "Ductwork Leak Testing".

(109) Section 15995A, Page 2, paragraph 1.1 SUBMITTALS, under SD-03 Product Data, delete "G-AO" from "Commissioning".

(110) Section 15995A, Page 2, paragraph 1.1 SUBMITTALS, under SD-03 Product Data, delete "G-AO" from "Pre-Commissioning".

(111) Section 16070, Page 2, paragraph 1.2 SUBMITTALS, delete "SD-02 Shop Drawings" in its entirety.

(112) Section 16070, Page 2, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete "Lighting Fixtures in Buildings; G-AO".

(113) Section 16070, Page 2, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, delete paragraph following ""Lighting Fixtures in Buildings; G-AO".

(114) Section 16120A, Page 2, paragraph 1.2 SUBMITTALS, delete SD-03 Product Data in its entirety.

(115) Section 16261N, Page 4, paragraph 1.2 SUBMITTALS, under SD-02 Shop Drawings, delete "Schematic diagram; G", "Interconnecting diagrams; G, and Installation drawings; G".

(116) Section 16261N, Page 5, paragraph 1.2 SUBMITTALS, under SD-03 Product Data, following "Variable frequency drives; G" add:

"Schematic diagram; G"

Interconnecting diagrams; G

Installation drawings; G".

(117) Section 16261N, Page 5, paragraph 1.2 SUBMITTALS, under SD-09 Manufacturer's Field Reports, delete "VFD Factory Test Plan; G".

(118) Section 16375A, Page 8, paragraph 1.3 SUBMITTALS, under SD-02 Shop Drawings, change "Electrical Distribution System; G-AE" to "Electrical Distribution System; G-AO.

(119) Section 16375A, Page 8, paragraph 1.3 SUBMITTALS, under SD-02 Shop Drawings, following As-Built Drawings; G-RE, delete "for approval." from 7th sentence.

(120) Section 16375A, Page 9, paragraph 1.3 SUBMITTALS, under SD-03 Product Data, delete "Fault Current Analysis, G-AE", Protective Device; G-AE", and "Coordination Study; G-AE" and delete paragraph following "Coordination

Study; G-AE".

(121) Section 16375A, Page 9, paragraph 1.3 SUBMITTALS, under SD-03 Product Data, delete "Material and Equipment; G-RE" and delete paragraph following "Material and Equipment; G-RE".

(122) Section 16375A, Page 10, paragraph 1.3 SUBMITTALS, under SD-06 Test Reports, change "Factory Tests; G-RE" to "Factory Tests".

(123) Section 16375A, Page,10 paragraph 1.3 SUBMITTALS, under SD-06 Test Reports, change "Field Testing; G-AE" to "Field Testing".

(124) Section 16375A, Page,11 paragraph 1.3 SUBMITTALS, under SD-06 Test Reports, change "Cable Installation; G-RE" to "Cable Installation; G-AO".

(125) Section 16375A, Page,11 paragraph 1.3 SUBMITTALS, under SD-07 Certificates, change "Material and Equipment; G-RE" to "Material and Equipment".

(126) Section 16375A, Page,12 paragraph 1.3 SUBMITTALS, under SD-07 Certificates, change Cable Joints; G-RE" to "Cable Joints".

(127) Section 16375A, Page,12 paragraph 1.3 SUBMITTALS, under SD-07 Certificates, change "Cable Installer Qualification; G-RE" to "Cable Installer Qualifications".

(128) Section 16375A, Page,12 paragraph 1.3 SUBMITTALS, under SD-10 Operation and Maintenance Data, change "Electrical Distribution System; G-RE" to "Electrical Distribution System".

(129) Section 16415A, Page 15, paragraph 1.3 SUBMITTALS, under SD-03 Product Data, delete "Material Equipment, and Fixture Lists; G-AE" and delete paragraph following "material Equipment, and Fixture Lists; G-AE".

(130) Section 16415A, Page 15, paragraph 1.3 SUBMITTALS, under SD-03 Product Data, change "Installation Procedures; G-RE" to "Installation Procedures".

(131) Section 16415A, Page 15, paragraph 1.3 SUBMITTALS, under SD-03 Product Data, in paragraph following AS-Built Drawings; G-RE, delete "for approval" in the 8th sentence.

(132) Section 16415A, Page 15, paragraph 1.3 SUBMITTALS, under SD-06 Test Reports, change "Factory Test Reports; G-RE" to "Factory Test Reports".

(133) Section 16415A, Page 16, paragraph 1.3 SUBMITTALS, under SD-07 Certificates, change "Materials and Equipment; G-AO" to "Materials and Equipment".

(134) Section 16710A, Page 4, paragraph 1.4 SUBMITTALS, under SD-02 Shop Drawings, change "Premises Distribution System; G-AE" to "Premises Distribution System; G-AO".

(135) Section 16710A, Page 4, paragraph 1.4 SUBMITTALS, under SD-02 Shop Drawings, change "Installation; G-AE" to "Installation; G-AO".

(136) Section 16710A, Page 4, paragraph 1.4 SUBMITTALS, under SD-03 Product Data, change "Record Keeping and Documentation; G-AE" to "Record Keeping and Documentation".

(137) Section 16710A, Page 4, paragraph 1.4 SUBMITTALS, under SD-03 Product Data, change "Spare Parts; G-AE" to "Spare Parts".

(138) Section 16710A, Page 4, paragraph 1.4 SUBMITTALS, under SD-03 Product Data, change "Manufacturer's Recommendations; G-AE" to "Manufacturer's Recommendations".

(139) Section 16710A, Page 4, paragraph 1.4 SUBMITTALS, under SD-03 Product Data, delete last sentence in paragraph following "Manufacturer's Recommendations; G-AE".

(140) Section 16710A, Page 5, paragraph 1.4 SUBMITTALS, under SD-03 Product Data, change Test Plans; G-AE" to "Test Plans; G-AO".

(141) Section 16710A, Page 5, paragraph 1.4 SUBMITTALS, under SD-03 Product Data, change "Qualifications; G-AE" to "Qualifications; G-AO".

(142) Section 16710A, Page 5, paragraph 1.4 SUBMITTALS, under SD-06 Test Reports, change Test Reports; G-AE" to "Test Reports; G-AO".

(143) Section 16710A, Page 4, paragraph 1.4 SUBMITTALS, under SD-07 Certificates, change "Premises Distribution System; G-AE" to "Premises Distribution System; G-AO".

(144) Section 16710A, Page 4, paragraph 1.4 SUBMITTALS, under SD-07 Certificates, change "Materials and Equipment; G-AE" to "Materials and Equipment; G-AO".

(145) Section 16710A, Page 4, paragraph 1.4 SUBMITTALS, under SD-07 Certificates, change "Installers; G-AE" to "installers; G-AO".

b. Specifications (New and/or Revised and Reissued). Delete and substitute or add specification pages as noted below. The substituted pages are revised and reissued with this amendment.

Pages Deleted	Pages Substituted or Added
Section 08330A	Section 08330A
Section 10440	Section 10440
---	Section 01355A
---	Section 01566
---	Section 08130
---	Section 08220
---	Section 09200A
---	Section 13289

c. Drawings (Not Reissued). The following sheets of drawing code AF740-28-01 are revised as indicated below with latest revision date of 05 August 2004. These drawings are not reissued with this amendment.

(1) Sheet G2.01 change Index Reference for sheet C9.02 from "Drainage Manhole Details" to "Drainage Manhole and Area Inlet Details".

(2) Sheet C4.01, add the following to note 6: " Soil shall remain undisturbed at locations where new footings are to be constructed adjacent to existing footings, and under footings of remaining structures. At these locations the existing ground shall be surface compacted, and the new footings shall be constructed on the exposed subgrade.

(3) Sheet C9.01, on detail 7 add the following at the end of the note which begins "3' of existing soil below . . ." "Soil shall remain undisturbed at locations where new footings are to be constructed adjacent to existing footings, and under footings of remaining structures. At these locations the existing ground shall be surface compacted, and the new footings shall be constructed on the exposed subgrade."

(4) Sheet C9.02, change sheet title from "Drainage Manhole Details" to "Drainage Manhole and Area Inlet Details".

(5) Sheet S1.01, under General Structural Notes: D. Footings, add Note "5. Wall footings and spread footings outside of the remaining exiting buildings to be sub cut and recomputed as described in the soil report. Footings adjacent to the remaining existing footings and all new footings within the existing building to be surface compacted only."

(6) Sheet A1.08, Sheet reference 3-C and Sheet A1.09, Plan 1, sheet references 3-D and 4-C, change note from "Paint Wall Hung Metal Shelf – Typ" to "Wall Hung Metal Shelf – NIC".

(7) Sheet A1.08, Plan 1, Rooms 152, 156, and 157, change note from "Bench" to "Red oak bench with clear finish on painted steel support posts 4'-0" on center – hold back of bench 2" from wall surface."

(8) Sheet A2.03, Sheet reference D-3, delete notes "Soffit".

(9) Sheet A4.07, Elevation Detail 5, change reference cut from "A1.01" to "A1.02".

(10) Sheet A7.04, Sheet reference A-2, at Bar Scale 1-1/2" = 1'-0", add note "All Details This Sheet."

(11) Sheet A8.01, Sheer reference B-2, at Bar Scale 1-1/2" = 1'-0", add note "All Details This Sheet Unless Noted Otherwise."

(12) Sheet A8.02, Sheer reference B-2, at Bar Scale 1-1/2" = 1'-0", add note "All Details This Sheet Unless Noted Otherwise."

(13) Sheet A9.03, Sheet reference A-2, add "Bar Scale 1-1/2" = 1'-0" All Details This Sheet."

(14) Sheet A9.05, Sheet reference A-2, add "Bar Scale 3" = 1'-0" All Details This Sheet."

(15) Sheet F4.01, Provide photoelectric smoke detector on Hallway side of fire door (door 173) at window W14. Provide connections from smoke detector to Fire Alarm Control Panel and fire door controller. Initiation of smoke detector to close fire door, and signal Fire Alarm Control Panel. Sheet F5.01.

(16) Sheet F5.01, Indicate photoelectric smoke detector in room 173 with connections to Fire Alarm Control Panel and fire door (door 173).

(17) Sheet E2.01, Provide 120V connection to coiling fire door (door 173) at window W14. Provide 1/2"C W/2#12 & 1#12G. to spare, 20 Amp, single pole, circuit breaker in panelboard L7. Coordinate connections with door installer.

d. Drawings (Reissued). The following sheets of drawing code AF 740-28-01 are revised with latest revision date of 05 August 2004, and reissued with this amendment.

(1) Dwg. AF 740-28-01 Sheet A1.05

(2) Dwg. AF 740-28-01 Sheet A4.01

(3) Dwg. AF 740-28-01 Sheet A4.02

(4) Dwg. AF 740-28-01 Sheet A4.03

(5) Dwg. AF 740-28-01 Sheet A5.01

(6) Dwg. AF 740-28-01 Sheet A5.02

(7) Dwg. AF 740-28-01 Sheet A6.01

(8) Dwg. AF 740-28-01 Sheet A6.03

(9) Dwg. AF 740-28-01 Sheet A6.04

(10) Dwg. AF 740-28-01 Sheet A9.02

(11) Dwg. AF 740-28-01 Sheet i1.02

(12) Dwg. AF 740-28-01 Sheet i1.04

(13) Dwg. AF 740-28-01 Sheet i2.04

(14) Sheet SKA10901

(15) Sheet SKA10902

(16) Sheet SKA50601

e. Drawings (New). The following new sheets of drawing code AF 740-28-01 dated 05 August 2004 are hereby added to the contract drawings and are issued with this amendment.

(1) Sheet SKC 90201

(2) Sheet SKC 90202

(3) Sheet SKA 10701

(4) Sheet SKA 10702

(5) Sheet SKA 10903

(6) Sheet SKA 20201

(7) Sheet SKA 40501

(8) Sheet SKA 40502

(9) Sheet SKA 40701

(10) Sheet SKA 40702

(11) Sheet SKA 70303

(12) Sheet SKA 90101

(13) Sheet SKA 90102

(14) Sheet SKA 90303

(15) Sheet SKA 90402

(16) Sheet SKA 90403

(17) Sheet SKA 90404

(18) Sheet SKi 20101

2. This amendment is a part of the bidding papers and its receipt shall be acknowledged on the Standard Form 1442. All other conditions and requirements of the specifications remain unchanged. If the bids have been mailed prior to receiving this amendment, you will notify the office where bids are opened, in the specified manner, immediately of its receipt and of any changes in your bid occasioned thereby.

a. Hand-Carried Bids shall be delivered to the U.S. Army Corps of Engineers, Omaha District, Contracting Division (Room 301), 106 South 15th Street, Omaha, Nebraska 68102-1618.

b. Mailed Bids shall be addressed as noted in Item 8 on Page 00010-1 of Standard Form 1442.

3. Bids will be received until 2:00 p.m., local time at place of bid opening, 19 AUG 2004.

Attachments:
Spec Pages listed in 1.b. above
Dwgs. listed in 1.d. and 1.e. above

U.S. Army Engineer District, Omaha
Corps of Engineers
106 South 15th Street
Omaha, Nebraska 68102-1618

9 August 2004
JDW/4529

SECTION TABLE OF CONTENTS

DIVISION 08 - DOORS AND WINDOWS

SECTION 08330A

OVERHEAD ROLLING DOORS

10/03

-- End of Section Table of Contents --

SECTION 08330A

OVERHEAD ROLLING DOORS
10/03

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A 653/A 653M	(2002a) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA ICS 2	(2000) Industrial Controls and Systems: Controllers, Contactors, and Overload Relays Rated 600 Volts
NEMA ICS 6	(1993; R 2001) Industrial Control and Systems: Enclosures
NEMA MG 1	(1998) Motors and Generators

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2002) National Electrical Code
NFPA 80	(1999) Fire Doors and Fire Windows

1.2 DESCRIPTION

Overhead rolling doors shall be spring counterbalanced, rolling type, with interlocking slats, complete with guides, fastenings, hood, brackets, and operating mechanisms, and shall be designed for use on openings as indicated. Fire doors shall bear the Underwriters Laboratories, Warnock Hersey, Factory Mutual or other nationally recognized testing laboratory label for the rating listed on the drawings. Each door shall be provided with a permanent label showing the manufacturer's name and address and the model/serial number of the door.

1.2.1 Operational Cycle Life

All portions of the door and door operating mechanism that are subject to movement, wear, or stress fatigue shall be designed to operate through a minimum number of 25,000 cycles. One complete cycle of door operation is defined as when the door is in the closed position, moves to the full open

position, and returns to the closed position.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Approved Detail Drawings; G-AE
Installation

Drawings showing the location of each door including schedules. Drawings shall include elevations of each door type, details and method of anchorage, details of construction, location and installation of hardware, shape and thickness of materials, details of joints and connections, and details of guides and other fittings.

SD-03 Product Data

Overhead Rolling Doors; G-AE

Manufacturer's catalog data and test data.

Manufacturer's preprinted installation instructions.

SD-04 Samples

Overhead Rolling Doors; G-AE

Submit three color samples of factory applied finishes.

SD-06 Test Reports

Tests

Written record of fire door drop test.

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals; G-AO

Six copies of the system operation manual and system maintenance and repair manual for each type of door and control system.

1.4 DELIVERY AND STORAGE

Doors shall be delivered to the jobsite wrapped in a protective covering with the brands and names clearly marked thereon. Doors shall be stored in a dry location that is adequately ventilated and free from dirt and dust, water, and other contaminants, and in a manner that permits easy access for inspection and handling.

1.5 WARRANTY

Manufacturer's standard performance guarantees or warranties that extend beyond a 1-year period shall be provided.

1.6 OPERATION AND MAINTENANCE MANUALS

Operating instructions outlining the step-by-step procedures required for motorized door and shutter operation for the overhead rolling door unit shall be provided. The instructions shall include the manufacturer's name, model number, service manual, parts list, and brief description of all equipment and their basic operating features. Maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs, troubleshooting guides, and simplified diagrams for the equipment as installed shall be provided. A complete list of parts and supplies, source of supply, and a list of the high mortality maintenance parts shall be provided.

PART 2 PRODUCTS

2.1 OVERHEAD ROLLING DOORS

Doors shall be between jamb-mounted type.

2.1.1 Curtains

The curtains shall roll up on a barrel supported at the head of opening on brackets, and shall be balanced by helical torsion springs. Steel slats for doors less than 15 feet wide shall be minimum bare metal thickness of 0.0281 inches.

2.1.1.1 Non-Insulated Curtains

Curtains shall be formed of interlocking slats of shapes standard with the manufacturer.

2.1.2 Endlocks and Windlocks

The ends of each alternate slat for interior doors shall have steel endlocks of manufacturer's stock design. Endlocks shall be provided in accordance with manufacturer's listing on fire doors when required by test results performed by the code listing agency.

2.1.3 Bottom Bar

The curtain shall have a standard bottom bar consisting of two hot-dip galvanized steel angles for steel doors. A sensing edge shall be attached to the bottom bar of doors that are electric-power operated.

2.1.4 Guides

Guides shall be steel structural shapes or formed steel shapes, of a size and depth to provide proper clearance for operation and resistance under the design windload. Guides shall be attached to adjoining construction with fasteners recommended by the manufacturer.

2.1.5 Barrel

The barrel shall be steel pipe or commercial welded steel tubing of proper

diameter for the size of curtain. Deflection shall not exceed 0.03 inch per foot of span. Ends of the barrel shall be closed with metal plugs, machined to fit the pipe.

2.1.6 Springs

Oil tempered helical steel counter-balance torsion springs shall be installed within the barrel and shall be capable of producing sufficient torque to assure easy operation of the door curtain. Access shall be provided for spring tension adjustment from outside of the bracket without removing the hood.

2.1.7 Brackets

Brackets shall be of steel plates to close the ends of the roller-shaft housing, and to provide mounting surfaces for the hood. An operation bracket hub and shaft plugs shall have sealed prelubricated ball bearings.

2.1.8 Hoods

Hoods shall be steel with minimum bare metal thickness of 0.0219 inches formed to fit contour of the end brackets, and shall be reinforced with steel rods, rolled beads, or flanges at top and bottom edges. Multiple segment and single piece hoods shall be provided with support brackets of the manufacturer's standard design as required for adequate support.

2.1.9 Operation

Doors shall be operated by means of electric power with auxiliary chain hoist. Equipment shall be designed and manufactured for usage in non-hazardous areas.

2.1.9.1 Electric Power Operator With Auxiliary Chain Hoist Operation

Electric power operators shall be heavy-duty industrial type. The unit shall operate the door through the operational cycle life specified. The electric power operator shall be complete with electric motor, auxiliary operation, necessary means of reduction for medium-duty doors, brake, mounting brackets, key controls, limit switches, magnetic reversing starter, and all other accessories necessary to operate components specified in other paragraphs of this section. The operator shall be so designed that the motor may be removed without disturbing the limit-switches settings and without affecting the emergency chain operator. Doors shall be provided with an auxiliary operator for immediate emergency manual operation of the door in case of electrical failure. Auxiliary operation shall be by means of galvanized endless chain extending to within 3 feet of the floor. The emergency manual operating mechanism shall be so arranged that it may be operated from the floor without affecting the settings of the limit switches. A mechanical device shall be included that will disconnect the motor from the drive operating mechanism when the auxiliary operator is used. Where control voltages differ from motor voltage, a control voltage transformer shall be provided in and as part of the electric power operator system. Control voltage shall not exceed 120 volts.

a. Motors: Drive motors shall conform to NEMA MG 1, shall be high-starting torque, reversible type, and shall be of sufficient horsepower and torque output to move the door in either direction from any position at a speed range of 6 to 8 inches per second without exceeding

the rated capacity. Motors shall be suitable for operation on 120 volts, 60 hertz, single phase current and shall be suitable for across-the-line starting. Motors shall be designed to operate at full capacity over a supply voltage variation of plus or minus 10 percent of the motor voltage rating. Motors shall be provided with overload protection.

b. Controls: Control equipment shall conform to NEMA ICS 2. Enclosures shall conform to NEMA ICS 6, Type 12 (industrial use), Type 7 or 9 in hazardous locations, in accordance with NFPA 70. Each control station shall be of the three position switch type, marked "OPEN," "CLOSE," and "STOP." The "OPEN" and "STOP" controls shall be of the momentary contact type with seal-in contact. The "CLOSE" control shall be of the momentary contact type. When the door is in motion and the "STOP" control is pressed, the door shall stop instantly and remain in the stop position; from the stop position, the door shall be operable in either direction by the "OPEN" or "CLOSE" controls. Controls shall be of the full-guarded type to prevent accidental operation. Readily adjustable limit switches shall be provided to automatically stop the doors at their fully open and closed positions.

c. Sensing Edge Device: The bottom edge of electric power operated doors shall have an electric sensing edge for non-hazardous areas that will reverse the door movement upon contact with an obstruction and cause the door to return to its full open position. The sensing edge shall not substitute for a limit switch.

d. Electrical Work: Conduit and wiring necessary for proper operation shall be provided under Section 16415A ELECTRICAL WORK, INTERIOR. Flexible connections between doors and fixed supports shall be made with flexible type SJO cable, except in hazardous locations where wiring shall conform to NFPA 70, as appropriate. The cable shall have a spring-loaded automatic take up reel or a coil cord equivalent device.

2.1.10 Finish

Steel slats and hoods shall be hot-dip galvanized minimum G60 in accordance with ASTM A 653/A 653M, and shall be treated for paint adhesion and shall receive a factory baked-on finish coat. Surfaces other than slats, hood, and faying surfaces shall be cleaned and treated to assure maximum paint adherence and shall be given a factory dip or spray coat of rust inhibitive metallic oxide or synthetic resin primer. Color shall be selected from manufacturers standard colors. Color listed is not intended to limit the selection of equal colors from other manufacturers..

2.2 FIRE DOORS

Fire rated rolling doors shall be provided at locations shown on the drawings. Fire doors shall conform to the requirements specified herein and to NFPA 80 for the class indicated. Doors shall bear the label of a recognized testing agency indicating the listed rating for the fire door. The construction details necessary for the listed rating shall take precedence over conflicting details shown or specified herein. Fire doors shall be complete with hardware, accessories, and automatic closing device. An automatic closing device shall operate upon the activation of a smoke detection system. Once the door has closed, it can be reset by resuming power to the motor operator, clearing the alarm system and activating the up control station. Mechanical resetting shall never be required.

PART 3 EXECUTION

3.1 INSTALLATION

Doors shall be installed in accordance with approved detail drawings and manufacturer's instructions. Anchors and inserts for guides, brackets, hardware, and other accessories shall be accurately located. Upon completion, doors shall be free from warp, twist, or distortion. Doors shall be lubricated, properly adjusted, and demonstrated to operate freely. Fire doors shall be installed in conformance with the requirements of NFPA 80 and the manufacturer's instructions.

3.2 FIELD PAINTED FINISH

Steel guides and bottom bar shall be field painted in accordance with Section 09900 PAINTING, GENERAL. Finish shall be free of scratches or other blemishes. Color shall match adjacent wall color.

3.3 TESTS

The fire doors shall be drop tested in accordance with NFPA 80 to show proper operation and full automatic closure and shall be reset in accordance with the manufacturer's instructions. A written record of initial test shall be provided to the Contracting Officer.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 10 - SPECIALTIES

SECTION 10440

INTERIOR SIGNAGE

07/02

-- End of Section Table of Contents --

SECTION 10440

INTERIOR SIGNAGE
07/02

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM B 221	(2002) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Detail Drawings; G-AE

Drawings showing elevations of each type of sign, dimensions, details and methods of mounting or anchoring, shape and thickness of materials, and details of construction. A schedule showing the location, each sign type, and message shall be included.

SD-03 Product Data

Installation; G-AE

Manufacturer's descriptive data, catalogs cuts, installation and cleaning instructions.

SD-04 Samples

Interior Signage; G-AE

One sample of each of the following sign types showing typical quality and workmanship. The samples may be installed in the

work, provided each sample is identified and location recorded.

TYPE 1-6.

Two samples of manufacturer's standard color chips for each material requiring color selection.

SD-10 Operation and Maintenance Data

Approved Manufacturer's Instructions; G-AE
Protection and Cleaning; G-AE

Six copies of operating instructions outlining the step-by-step procedures required for system operation shall be provided. The instructions shall include simplified diagrams for the system as installed. Six copies of maintenance instructions listing routine procedures, repairs, and guides shall be provided. The instructions shall include the manufacturer's name, model number, service manual, parts list, and brief description of all equipment and their basic operating features. Each set shall be permanently bound and shall have a hard cover. The following identification shall be inscribed on the covers: the words "OPERATING AND MAINTENANCE INSTRUCTIONS", name and location of the facility, name of the Contractor, and contract number.

1.3 GENERAL

Interior signage shall be of the design, detail, sizes, types, and message content shown on the drawings, shall conform to the requirements specified, and shall be provided at the locations indicated. Signs shall be complete with lettering, framing as detailed, and related components for a complete installation. Recyclable materials shall conform to EPA requirements in accordance with Section 01670 RECYCLED / RECOVERED MATERIALS.

1.3.1 Character Proportions and Heights

Letters and numbers on indicated signs in handicapped-accessible buildings, which do not designate permanent rooms or spaces, shall have a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10. Characters and numbers on indicated signs shall be sized according to the viewing distance from which they are to be read. The minimum height is measured using an upper case letter "X". Lower case characters are permitted. Suspended or projected overhead signs shall have a minimum character height of 3 inches.

1.3.2 Raised and Brailled Characters and Pictorial Symbol Signs (Pictograms)

Letters and numbers on indicated signs which designate permanent rooms and spaces in handicapped-accessible buildings shall be raised 1/32 inch upper case, sans serif or simple serif type and shall be accompanied with Grade 2 Braille. Raised characters shall be at least 5/8 inch in height, but no higher than 2 inches. Pictograms shall be accompanied by the equivalent verbal description placed directly below the pictogram. The border dimension of the pictogram shall be 6 inches minimum in height. Indicated accessible facilities shall use the international symbol of accessibility.

1.4 QUALIFICATIONS

Signs, plaques, and dimensional letters shall be the standard product of a

manufacturer regularly engaged in the manufacture of such products and shall essentially duplicate signs that have been in satisfactory use at least 2 years prior to bid opening.

1.5 DELIVERY AND STORAGE

Materials shall be delivered to the jobsite in manufacturer's original packaging and stored in a clean, dry area in accordance with manufacturer's instructions.

1.6 EXTRA STOCK

The Contractor shall provide 6 extra frames and extra stock of the following: Six blank plates of each color and size for sign types 1,2,3,5.

PART 2 PRODUCTS

2.1 ROOM IDENTIFICATION/DIRECTIONAL SIGNAGE SYSTEM

Signs shall be fabricated of extruded aluminum conforming to ASTM B 221.

2.1.1 Standard Room Signs

Signs shall consist of aluminum alloy with photopolymer laminate containing encapsulated graphics (Sign Type 1), aluminum-based photopolymer tactile and Braille characters (Sign Type 2, 3, 4). Signs shall consist of matte finish acrylic plastic. Corners of signs shall be squared (Sign Type 1, 2, 3, 4).

2.1.1.1 Changeable Message Strip Signs

Changeable message strip signs shall consist of aluminum alloy with photopolymer laminate containing encapsulated graphics face with message slots and associated end caps, as detailed, for insertion of changeable message strips. Size of signs shall be as shown on the drawings. Individual message strips to permit removal, change, and reinsertion shall be provided as detailed. Corner of signs shall be squared.

2.1.1.2 Banner-type Signs (Sign Type 6)

Signs shall consist of silkscreen field color, graphics and lettering applied to cotton duck material. (ASI Modulux "Fabrisign Cotton Duck" is standard of quality). Thread for fabrication shall be clear. Signs shall be two-sided.

2.1.2 Type of Mounting For Signs

Extruded aluminum brackets, mounted as shown, shall be furnished for hanging, projecting, and double-sided signs. Mounting for projecting signs shall be by mechanical fasteners. Surface mounted signs shall be provided with VHB (Very High Bond) tape (Sign Type 1, 3), extruded aluminum alloy track type rail mounted to wall with manufacturer's recommended fasteners (Sign Type 2)..

2.1.3 Graphics

Signage graphics for modular identification/directional signs shall conform to the following:

Pressure sensitive prespaced and prealigned precision computer cut vinyl letters on release paper shall be provided. Edges and corners of finished letter forms and graphics shall be true and clean. Vinyl sheeting for graphics shall be 5 to 7 year premium type and shall be a minimum 0.003 inch film thickness. Film shall include a precoated pressure sensitive adhesive backing.

2.2 PRESSURE SENSITIVE LETTERS

2.2.1 Typeface

Helvetica medium.

2.2.2 Size

As indicated.

2.2.3 Color

As indicated.

PART 3 EXECUTION

3.1 INSTALLATION

Signs shall be installed in accordance with approved manufacturer's instructions at locations shown on the detail drawings. Signs shall be installed plumb and true at mounting heights indicated, and by method shown or specified. Required blocking shall be installed as detailed. Signs which designate permanent rooms and spaces in handicapped-accessible buildings shall be installed on the wall adjacent to the latch side of the door. Where there is no wall space to the latch side of the door, including at double leaf doors, signs shall be placed on the nearest adjacent wall. Mounting location for such signage shall be so that a person may approach within 3 inches of signage without encountering protruding objects or standing within the swing of a door. Signs on doors or other surfaces shall not be installed until finishes on such surfaces have been installed. Signs installed on glass surfaces shall be installed with matching blank back-up plates in accordance with manufacturer's instructions.

3.1.1 Anchorage

Anchorage shall be in accordance with approved manufacturer's instructions. Anchorage not otherwise specified or shown shall include slotted inserts, expansion shields, and powder-driven fasteners when approved for concrete; toggle bolts and through bolts for masonry; machine carriage bolts for steel; lag bolts and screws for wood. Exposed anchor and fastener materials shall be compatible with metal to which applied and shall have matching color and finish. Where recommended by signage manufacturer, foam tape pads may be used for anchorage. Foam tape pads shall be minimum 1/16 inch thick closed cell vinyl foam with adhesive backing. Adhesive shall be transparent, long aging, high tech formulation on two sides of the vinyl foam. Adhesive surfaces shall be protected with a 5 mil green flatstock treated with silicone. Foam pads shall be sized for the signage as per signage manufacturer's recommendations. Signs mounted to painted gypsum

board surfaces shall be removable for painting maintenance. Signs mounted to lay-in ceiling grids shall be mounted with clip connections to ceiling tees.

3.1.2 Protection and Cleaning

The work shall be protected against damage during construction. Hardware and electrical equipment shall be adjusted for proper operation. Glass, frames, and other sign surfaces shall be cleaned in accordance with the manufacturer's approved instructions.

-- End of Section --

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PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AIR FORCE INSTRUCTION

AFI 32-1053	Pest Management Program

CODE OF FEDERAL REGULATIONS (CFR)

33 CFR 328	Definitions
40 CFR 68	Chemical Accident Prevention Provisions
40 CFR 152 - 186	Pesticide Programs
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 279	Standards for the Management of Used Oil
40 CFR 302	Designation, Reportable Quantities, and Notification
40 CFR 355	Emergency Planning and Notification
49 CFR 171 - 178	Hazardous Materials Regulations

ENGINEERING MANUALS (EM)

EM 385-1-1	(1996) U.S. Army Corps on Engineers Safety and Health Requirements Manual

MINOT AFB

FRP	Facility Response Plan
NDRO2-0000	Minot North Dakota Pollutant Discharge Elimination System (NDPDES) Industrial Storm Water Discharge Permit

SPCCP	Spill Prevention Control and Counter-measures Plan (SPCCP)
SWPPP	Storm Water Pollution Prevention Plan

NORTH DAKOTA ADMINISTRATION CODE

33-15-17	Restriction of Fugitive Emissions

US ARMY CORPS OF ENGINEERS TECHNICAL REPORT

WETLAND MANUAL	Corps of Engineers Wetlands Delineation Manual Technical Report Y-87-1

1.2 DEFINITIONS

1.2.1 Environmental Pollution and Damage

Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally and/or historically.

1.2.2 Environmental Protection

Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2.3 Contractor Generated Hazardous Waste

Contractor generated hazardous waste means materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the Contractor to execute work, but are not fully consumed during the course of construction. Examples include, but are not limited to, excess paint thinners (i.e. methyl ethyl ketone, toluene etc.), waste thinners,excess paints, excess solvents, waste solvents, and excess pesticides, and contaminated pesticide equipment rinse water.

1.2.4 Installation Pest Management Coordinator

Installation Pest Management Coordinator (IPMC) is the individual officially designated by the Installation Commander to oversee the Installation Pest Management Program and the Installation Pest Management Plan.

1.2.5 Land Application for Discharge Water

The term "Land Application" for discharge water implies that the Contractor shall discharge water at a rate which allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, discharge into defined drainage areas, or discharge into the "waters of the

United States" shall occur. Land Application shall be in compliance with all applicable Federal, State, and local laws and regulations.

1.2.6 Pesticide

Pesticide is defined as any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant or desiccant.

1.2.7 Pests

The term "pests" means arthropods, birds, rodents, nematodes, fungi, bacteria, viruses, algae, snails, marine borers, snakes, weeds and other organisms (except for human or animal disease-causing organisms) that adversely affect readiness, military operations, or the well-being of personnel and animals; attack or damage real property, supplies, equipment, or vegetation; or are otherwise undesirable.

1.2.8 Surface Discharge

The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers,creeks, and/or "waters of the United States" and would require a permit to discharge water from the governing agency.

1.2.9 Waters of the United States

All waters which are under the jurisdiction of the Clean Water Act, as defined in 33 CFR 328.

1.2.10 Wetlands

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, and bogs. Official determination of whether or not an area is classified as a wetland must be done in accordance with WETLAND MANUAL.

1.3 GENERAL REQUIREMENTS

The Contractor shall minimize environmental pollution and damage that may occur as the result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of this contract. The Contractor shall comply with all applicable environmental Federal, State, and local laws and regulations. The Contractor shall be responsible for any delays resulting from failure to comply with environmental laws and regulations.

1.4 SUBCONTRACTORS

The Contractor shall ensure compliance with this section by subcontractors.

1.5 PAYMENT

No separate payment will be made for work covered under this section. The

Contractor shall be responsible for payment of fees associated with environmental permits, application, and/or notices obtained by the Contractor. All costs associated with this section shall be included in the contract price. The Contractor shall be responsible for payment of all fines/fees for violation or non-compliance with Federal, State, Regional and local laws and regulations.

1.6 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Environmental Protection Plan; G-AO

The environmental protection plan.

1.7 ENVIRONMENTAL PROTECTION PLAN

Prior to commencing construction activities or delivery of materials to the site, the Contractor shall submit an Environmental Protection Plan for review and approval by the Contracting Officer and shall furnish a copy (through the Contracting Officer) to Minot AFB Environmental Flight. The purpose of the Environmental Protection Plan is to present a comprehensive overview of known or potential environmental issues which the Contractor must address during construction. Issues of concern shall be defined within the Environmental Protection Plan as outlined in this section. The Contractor shall address each topic at a level of detail commensurate with the environmental issue and required construction task(s). Topics or issues which are not identified in this section, but which the Contractor considers necessary, shall be identified and discussed after those items formally identified in this section. Prior to submittal of the Environmental Protection Plan, the Contractor shall meet with the Contracting Officer for the purpose of discussing the implementation of the initial Environmental Protection Plan; possible subsequent additions and revisions to the plan including any reporting requirements; and methods for administration of the Contractor's Environmental Plans. The Contractor shall maintain a current version of the Environmental Protection Plan on site for review by interested parties.

1.7.1 Compliance

No requirement in this Section shall be construed as relieving the Contractor of any applicable Federal, State, and local environmental protection laws and regulations. During Construction, the Contractor shall be responsible for identifying, submitting for approval, and implementing any additional requirements to be included in the Environmental Protection Plan.

1.7.2 Contents

The environmental protection plan shall include, but shall not be limited to, the following:

a. Name(s) of person(s) within the Contractor's organization who

is(are) responsible for ensuring adherence to the Environmental Protection Plan.

b. Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from the site, if applicable.

c. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel.

d. Description of the Contractor's environmental protection personnel training program.

e. An erosion and sediment control plan which identifies the type and location of the erosion and sediment controls to be provided. The plan shall include monitoring and reporting requirements to assure that the control measures are in compliance with the erosion and sediment control plan, Federal, State, and local laws and regulations. A Storm Water Pollution Prevention Plan (SWPPP) may be substituted for this plan.

f. Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on the site.

g. Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plan shall include measures to minimize the amount of mud transported onto paved public roads by vehicles or runoff.

h. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas including methods for protection of features to be preserved within authorized work areas.

i. Drawing showing the location of borrow areas.

j. The Spill Control plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by 40 CFR 68, 40 CFR 302, 40 CFR 355, and/or regulated under State or Local laws and regulations. The Spill Control Plan supplements the requirements of EM 385-1-1 and Minot AFB's FRP Facility Response Plan and SPCCP Spill Prevention and Counter-measures Plan that may be reviewed at Minot AFB Environmental Flight. This plan shall include as a minimum:

1. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Contracting Officer and Facility Fire Department Facility Response Personnel Facility Environmental Office in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity is released to the environment. The plan shall contain a list of the required reporting channels and telephone numbers.

2. The name and qualifications of the individual who will be responsible for implementing and supervising the containment and

cleanup.

3. Training requirements for Contractor's personnel and methods of accomplishing the training.

4. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.

5. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.

6. The methods and procedures to be used for expeditious contaminant cleanup.

k. A non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris. The plan shall include schedules for disposal. The Contractor shall identify any subcontractors responsible for the transportation and disposal of solid waste. Licenses or permits shall be submitted for solid waste disposal sites that are not a commercial operating facility. Evidence of the disposal facility's acceptance of the solid waste shall be attached to this plan during the construction. The Contractor shall attach a copy of each of the Non-hazardous Solid Waste Diversion Reports to the disposal plan. The report shall be submitted on the first working day after the first quarter that non-hazardous solid waste has been disposed and/or diverted and shall be for the previous quarter (e.g. the first working day of January, April, July, and October). The report shall indicate the total amount of waste generated and total amount of waste diverted in cubic yards or tons along with the percent that was diverted.

l. A recycling and solid waste minimization plan with a list of measures to reduce consumption of energy and natural resources. The plan shall detail the Contractor's actions to comply with and to participate in Federal, State, Regional, and local government sponsored recycling programs to reduce the volume of solid waste at the source.

m. An air pollution control plan detailing provisions to assure that dust, debris, materials, trash, etc., do not become air borne and travel off the project site. The plan shall include methods for minimizing emissions from volatile substances used throughout the project.

n. A contaminant prevention plan that: identifies potentially hazardous substances to be used on the job site; identifies the intended actions to prevent introduction of such materials into the air, water, or ground; and details provisions for compliance with Federal, State, and local laws and regulations for storage and handling of these materials. In accordance with EM 385-1-1, a copy of the Material Safety Data Sheets (MSDS) and the maximum quantity of each hazardous material to be on site at any given time shall be included in the contaminant prevention plan. As new hazardous materials are brought on site or removed from the site, the plan shall be updated.

o. A waste water management plan that identifies the methods and procedures for management and/or discharge of waste waters which are

directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines. If a settling/retention pond is required, the plan shall include the design of the pond including drawings, removal plan, and testing requirements for possible pollutants. If land application will be the method of disposal for the waste water, the plan shall include a sketch showing the location for land application along with a description of the pretreatment methods to be implemented. If surface discharge will be the method of disposal, a copy of the permit and associated documents shall be included as an attachment prior to discharging the waste water. If disposal is to a sanitary sewer, the plan shall include documentation that the Waste Water Treatment Plant Operator has approved the flow rate, volume, and type of discharge.

p. A historical, archaeological, cultural, biological, and wetland resources plan that defines procedures for identifying and protecting the resources known to be on the project site and/or any resources discovered during construction. The plan shall identify lines of communication between Contractor personnel and the Contracting Officer.

q. A pesticide treatment plan shall be included and updated, as information becomes available. The plan shall include: sequence of treatment, dates, times, locations, pesticide trade name, EPA registration numbers, authorized uses, chemical composition, formulation, original and applied concentration, application rates of active ingredient (i.e. pounds of active ingredient applied), equipment used for application and calibration of equipment. The Contractor is responsible for Federal, State, Regional and Local pest management record keeping and reporting requirements as well as any additional Installation specific requirements. The Contractor shall follow AFI 32-1053 Sections 3.4.13 and 3.4.14 for data required to be reported to the Installation.

1.7.3 Appendix

Copies of all Contractor's environmental permits, permit application packages, approvals to construct, notifications, certifications, reports, and termination documents shall be attached, as an appendix, to the Environmental Protection Plan.

1.8 PROTECTION FEATURES

This paragraph supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. Prior to start of any on site construction activities, the Contractor and the Contracting Officer shall make a joint condition survey. Immediately following the survey, the Contractor shall prepare a brief report including a plan describing the features requiring protection under the provisions of the Contract Clauses, which are not specifically identified on the drawings as environmental features requiring protection along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the Contractor's assigned storage area and access route(s), as applicable. This survey report shall be signed by both the the Contractor and the Contracting Officer upon mutual agreement as to its accuracy and completeness. The Contractor shall protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference which their preservation may cause to the Contractor's work under the contract.

1.8.1 Applications, Supporting Documents, and Fees

The Contractor shall obtain and complete all environmental permit applications and notices including any documents required for a modification for an existing permit held by the Facility. The Contractor is responsible for preparing all supporting documents, including but not limited to engineering reports, emission surveys, diagrams, pollutant load calculations, etc. If, in lieu of permits, the governing agency requires review and approval of the design, the Contractor shall submit and obtain approval of the design and associated documents. The Contractor shall be responsible for all fees associated with the permits, applications, reviews, approvals, and notices.

1.8.2 Environmental Permits, Notices, Reviews, and/or Approvals

The following is a listing of permits, notices, reviews, and/or approvals which **may be** required for this project. This listing and requirements are not to be considered all-inclusive by the Contractor, but is provided as information that may be used in successfully accomplishing the environmental compliances. See Internet site http://http://www.health.state.nd.us/ndhd/for North Dakota's Environmental Issues.

a. The State of North Dakota has authority for the National Pollutant Discharge Elimination System (NPDES) program. Minot Air Force Base (MAFB) has been issued a North Dakota Department of Environmental and Natural Resources Authorization to Discharge Under the Surface Water Discharge System. The Storm Water Pollution Prevention Plan (SWPPP) is a requirement of this permit. The SWPPP may be reviewed at the Environmental Flight Office. The Contractor shall be responsible for coordination with the Environmental Flight for possible modifications to this permit for surface drainage discharges.

b. If construction activities results in disturbance of 1 acre of land or more (sites that may be smaller than 1 acre but are part of common plan of development are considered to be over 1 acre), coverage under the Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System (NDPDES) Permit No. NDR03-0000 for storm water discharge from construction site is required. The Contractor shall be responsible for implementing the terms and requirements of the permit and shall be considered the "permittee". The Contractor shall prepare and implement a Storm Water Pollution Prevention Plan, inspections, and reporting in accordance with the NDR03-0000 Permit. The SWPPP and a copy of an unsigned Notice of Intent (NOI) shall be submitted with the 100% design submittals for review and comments by the Contracting Officer or at a minimum 45 days prior to construction commencing. The Contractor shall be responsible for all submittals to the State of North Dakota 30 days prior to construction activity beginning in accordance with Permit No. NDR03-0000. The Contractor shall be responsible for assuring that their SWPPP is in accordance with Minot AFB's SWPPP (identified in the above paragraph). The Contractor shall retain copies of the storm water pollution prevention plan and all reports in accordance with the permit. All submissions to the State shall be by certified mail. The Contractor shall include copies of all submittals to the State

of North Dakota (NOI/NOT), a return certified mail receipt, plans, and reports in the Appendix to the Environmental Protection Plan. The State of North Dakota web site for the NPDES Program is http://www.health.state.nd.us/wq/Storm/Construction/ConstructionHome.htm.

c. Drinking water, new water mains including fire hydrants, lawn sprinkler systems, back-flow preventers, lift stations, stormwater and sanitary sewer approval of plans and specifications is required by the State of North Dakota prior to construction commencing. These plans and specifications shall be sent to the North Dakota Department of Health, Division of Municipal Facilities, ATTN: Gary Stefanovsky, 1200 Mission Avenue, Bismarck, North Dakota 58506-5520; for review and approval. The plans and specifications shall be submitted with a cover letter requesting a review and approval. The plans and specifications are required to have a stamp and signature of a registered engineer from the State of North Dakota. A copy of the request shall be forwarded to the Minot Environmental Flight Office and the COR. The State of North Dakota may take up to 30 days for approval.

1.9 ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

Any deviations, requested by the Contractor, from the drawings,plans and specifications which may have an environmental impact will be subject to approval by the Contracting Officer and may require an extended review, processing, and approval time. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

1.10 NOTIFICATION

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with Federal, State or local environmental laws or regulations, permits, and other elements of the Contractor's Environmental Protection plan. The Contractor shall, after receipt of such notice, inform the Contracting Officer of the proposed corrective action and take such action when approved by the Contracting Officer. The Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or equitable adjustments allowed to the Contractor for any such suspensions. This is in addition to any other actions the Contracting Officer may take under the contract, or in accordance with the Federal Acquisition Regulation or Federal Law.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 LAND RESOURCES

The Contractor shall confine all activities to areas defined by the drawings and specifications. Prior to the beginning of any construction, the Contractor shall identify any land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without approval. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. The

Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Stone, soil, or other materials displaced into uncleared areas shall be removed by the Contractor.

3.1.1 Work Area Limits

Prior to commencing construction activities, the Contractor shall mark the areas that need not be disturbed under this contract. Isolated areas within the general work area which are not to be disturbed shall be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, any markers shall be visible in the dark. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

3.1.2 Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques. The Contractor shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area.

3.1.3 Erosion and Sediment Controls

The Contractor shall be responsible for providing erosion and sediment control measures in accordance with Federal, State, and local laws and regulations. The erosion and sediment controls selected and maintained by the Contractor shall be such that water quality standards are not violated as a result of the Contractor's construction activities. The area of bare soil exposed at any one time by construction operations should be kept to a minimum. The Contractor shall construct or install temporary and permanent erosion and sediment control best management practices (BMPs) as indicated on the drawings and/or as specified in Section 01356 STORM WATER POLLUTION PREVENTION MEASURES. BMPs may include, but not be limited to, vegetation cover, stream bank stabilization, slope stabilization, silt fences, construction of terraces, interceptor channels, sediment traps, inlet and outfall protection, diversion channels, and sedimentation basins. The Contractor's best management practices shall be in accordance with NDRO2-0000 Minot AFB North Dakota Pollutant Discharge Elimination System (NPDES) Industrial Storm Water Permit including Minot AFB's Storm Water Pollution Prevention Plan (SWPPP) that may be reviewed at the Minot AFB's Environmental Office. Any temporary measures shall be removed after the area has been stabilized.

3.1.4 Contractor Facilities and Work Areas

The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas designated on the drawings or as directed by the Contracting Officer. Temporary movement or relocation of Contractor facilities shall be made only when approved. Erosion and sediment controls shall be provided for on-site borrow and spoil areas to prevent sediment from entering nearby waters. Temporary excavation and embankments for plant and/or work areas shall be controlled to protect adjacent areas.

3.2 WATER RESOURCES

The Contractor shall monitor construction activities to prevent pollution of surface and ground waters. Toxic or hazardous chemicals shall not be applied to soil or vegetation unless otherwise indicated. All water areas affected by construction activities shall be monitored by the Contractor. For construction activities immediately adjacent to impaired surface waters, the Contractor shall be capable of quantifying sediment or pollutant loading to that surface water when required by State or Federally issued Clean Water Act permits.

3.2.1 Wetlands

The Contractor shall not enter, disturb, destroy, or allow discharge of contaminants into any wetlands.

3.3 AIR RESOURCES

Equipment operation, activities, or processes performed by the Contractor shall be in accordance with all Federal and State air emission and performance laws and standards.

3.3.1 Particulates

Dust particles; aerosols and gaseous by-products from construction activities; and processing and preparation of materials, such as from asphaltic batch plants; shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The Contractor shall comply with North Dakota Administration Code 33-15-17 Restriction of Fugitive Emissions. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause the Federal, State, and local air pollution standards to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, baghouse, scrubbers, electrostatic precipitators or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp at all times. The Contractor must have sufficient, competent equipment available to accomplish these tasks. Particulate control shall be performed as the work proceeds and prior to particulate matter becoming a nuisance or hazard. The Contractor shall comply with all State and local visibility regulations.

3.3.2 Odors

Odors from construction activities shall be controlled at all times. The odors shall not cause a health hazard and shall be in compliance with State regulations and/or local ordinances.

3.3.3 Sound Intrusions

The Contractor shall keep construction activities under surveillance and control to minimize environment damage by noise. The Contractor shall comply with the provisions of the State of North Dakota's rules.

3.3.4 Burning

Burning shall be prohibited on the Government premises.

3.4 MANAGEMENT AND DISPOSAL OF WASTE AND CHEMICAL MATERIALS

Management and disposal of wastes and chemical materials shall be as directed below, unless otherwise specified in other sections and/or shown on the drawings.

3.4.1 Solid Wastes

Solid wastes (excluding clearing debris) shall be placed in containers which are emptied on a regular schedule. Handling, storage, and disposal shall be conducted to prevent contamination. Segregation measures shall be employed so that no hazardous or toxic waste will become co-mingled with solid waste. The Contractor shall transport solid waste off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal. A Subtitle D RCRA permitted landfill shall be the minimum acceptable off-site solid waste disposal option. The Contractor shall verify that the selected transporters and disposal facilities have the necessary permits and licenses to operate.

3.4.2 Chemicals and Chemical Wastes

Chemicals shall be dispensed ensuring no spillage to the ground or water. The Contractor shall be handled in a way that minimizes emissions from evaporation at all times. Periodic inspections of dispensing areas to identify leakage and initiate corrective action shall be performed and documented. This documentation will be periodically reviewed by the Government. Chemical waste shall be collected in corrosion resistant, compatible containers. Collection drums shall be monitored and removed to a staging or storage area when contents are within 6 inches of the top. Wastes shall be classified, managed, stored, and disposed of in accordance with Federal, State, and local laws and regulations.

3.4.3 Contractor Generated Hazardous Wastes/Excess Hazardous Materials

Hazardous wastes are defined in 40 CFR 261, or are as defined by applicable State and local regulations. Hazardous materials are defined in 49 CFR 171 - 178. The Contractor shall, at a minimum, manage and store hazardous waste in compliance with 40 CFR 262. and shall manage and store hazardous waste in accordance with the hazardous waste management plan. The Contractor shall take sufficient measures to prevent spillage of hazardous and toxic materials during dispensing. The Contractor shall segregate hazardous waste from other materials and wastes, shall protect it from the weather by placing it in a safe covered location, and shall take precautionary measures such as berming or other appropriate measures against accidental spillage. The Contractor shall be responsible for storage, describing, packaging, labeling, marking, and placarding of hazardous waste and hazardous material in accordance with 49 CFR 171 - 178, State, and local laws and regulations. The Contractor shall contact Minot AFB's HAZMART office to arrange for acceptance of any Contractor generated hazardous waste. No hazardous waste will be taken off the facility by the Contractor. Unused or partially used containers of hazardous material (i.e., paint, adhesive) are not hazardous waste and will be taken off the facility for reuse by the Contractor. Spills of hazardous or toxic materials shall be immediately reported to the Contracting Officer. Cleanup and cleanup costs due to spills shall be the Contractor's responsibility. The disposition of Contractor generated hazardous waste and excess hazardous materials are the Contractor's responsibility.

3.4.4 Fuel and Lubricants

Storage, fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spill and evaporation. Fuel, lubricants and oil shall be managed and stored in accordance with all Federal, State, Regional, and local laws and regulations. Used lubricants and used oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with 40 CFR 279, State, and local laws and regulations. There shall be no storage of fuel on the project site. Fuel must be brought to the project site each day that work is performed.

3.4.5 Waste Water

Disposal of waste water shall be as specified below.

a. Waste water from construction activities, such as on site material processing, concrete curing, foundation and concrete clean-up, water used in concrete trucks, forms, etc. shall not be allowed to enter water ways or to be discharged prior to being treated to remove pollutants. The Contractor shall dispose of the construction related waste water off-Government property in accordance with all Federal, State, Regional and Local laws and regulations.

b. For discharge of ground water, the Contractor shall obtain coverage under the State of North Dakota's General Permit specific for pumping and dewatering activities prior to surface or "waters of the State" discharging. The Contractor shall be responsible for assuring that all discharge of water shall be in accordance with all Federal, State, Regional and local laws and regulations.

c. For water generated from the disinfection and hydrostatic testing of the domestic water and sewer lines including firewater lines, the Contractor shall discharge the waste water into the sanitary sewer with prior approval and/or notification to the Waste Water Treatment Plant's Operator.

d. For water generated from hydrostatic testing the new above and under ground storage tanks, the Contractor shall obtain coverage under the State of North Dakota Hydrostatic Testing General permit and shall discharge the water in accordance with all Federal, State, and local laws and regulations.

3.5 RECYCLING AND WASTE MINIMIZATION

The Contractor shall participate in State and local government sponsored recycling programs. The Contractor is further encouraged to minimize solid waste generation throughout the duration of the project.

3.6 NON-HAZARDOUS SOLID WASTE DIVERSION REPORT

The Contractor shall maintain an inventory of non-hazardous solid waste diversion and disposal of construction and demolition debris. The Contractor shall submit a report to Minot AFB's Environmental Flight through the Contracting Officer on the first working day after each fiscal year quarter, starting the first quarter that non-hazardous solid waste has been generated. The following shall be included in the report:

a. Construction and Demolition (C&D) Debris Disposed = _____ in cubic yards or tons, as appropriate.

b. Construction and Demolition (C&D) Debris Recycled = _____ in cubic yards or tons, as appropriate.

c. Total C&D Debris Generated = _____ in cubic yards or tons, as appropriate.

d. Waste Sent to Waste-To-Energy Incineration Plant (This amount should not be included in the recycled amount) = _____ in cubic yards or tons, as appropriate.

3.7 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

If during excavation or other construction activities any previously unidentified or unanticipated historical, archaeological, and cultural resources are discovered or found, all activities that may damage or alter such resources shall be temporarily suspended. Resources covered by this paragraph include but are not limited to: any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rock or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other historical human activities. Upon such discovery or find, the Contractor shall immediately notify the Contracting Officer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in impact to or the destruction of these resources. The Contractor shall secure the area and prevent Contractor personnel or other persons from trespassing on, removing, or otherwise disturbing such resources.

3.8 BIOLOGICAL RESOURCES

The Contractor shall minimize interference with, disturbance to, and damage to fish, wildlife, and plants including their habitat. The Contractor shall be responsible for the protection of threatened and endangered animal and plant species including their habitat in accordance with Federal, State, Regional, and local laws and regulations.

3.9 INTEGRATED PEST MANAGEMENT

In order to minimize impacts to existing fauna and flora, the Contractor, through the Contracting Officer, shall coordinate with the Installation Pest Management Coordinator (IPMC) at the earliest possible time prior to pesticide application. The Contractor shall discuss integrated pest management strategies with the IPMC and receive concurrence from the IPMC through the COR prior to the application of any pesticide associated with these specifications. Installation Pest Management personnel shall be given the opportunity to be present at all meetings concerning treatment measures for pest or disease control and during application of the pesticide. The use and management of pesticides are regulated under 40 CFR 152 - 186.

3.9.1 Pesticide Delivery and Storage

Pesticides shall be delivered to the site in the original, unopened containers bearing legible labels indicating the EPA registration number

and the manufacturer's registered uses. Pesticides shall be stored according to manufacturer's instructions and under lock and key when unattended.

3.9.2 Qualifications

For the application of pesticides, the Contractor shall use the services of a subcontractor whose principal business is pest control. The subcontractor shall be licensed and certified in the state where the work is to be performed.

3.9.3 Pesticide Handling Requirements

The Contractor shall formulate, treat with, and dispose of pesticides and associated containers in accordance with label directions and shall use the clothing and personal protective equipment specified on the labeling for use during all phases of the application. Material Safety Data Sheets (MSDS)shall be available for all pesticide products.

3.9.4 Application

Pesticides shall be applied by a State Certified Pesticide Applicator in accordance with EPA label restrictions and recommendation. The Certified Applicator shall wear clothing and personal protective equipment as specified on the pesticide label. Water used for formulating shall only come from locations designated by the Contracting Officer. The Contractor shall not allow the equipment to overflow. Prior to application of pesticide, all equipment shall be inspected for leaks, clogging, wear, or damage and shall be repaired prior to being used.

3.10 PREVIOUSLY USED EQUIPMENT

The Contractor shall clean all previously used construction equipment prior to bringing it onto the project site. The Contractor shall ensure that the equipment is free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. The Contractor shall consult with the USDA jurisdictional office for additional cleaning requirements.

3.11 MAINTENANCE OF POLLUTION FACILITIES

The Contractor shall maintain permanent and temporary pollution control facilities and devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

3.12 MILITARY MUNITIONS

In the event the Contractor discovers or uncovers military munitions as defined in 40 CFR 260, the Contractor shall immediately stop work in that area and immediately inform the Contracting Officer.

3.13 TRAINING OF CONTRACTOR PERSONNEL

The Contractor's personnel shall be trained in all phases of environmental protection and pollution control. The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel prior to commencing construction activities. The Contractor shall document all attendees in attendance at this and any subsequent meetings. Additional meetings shall be conducted for new personnel and when site conditions change. The training and meeting agenda shall include:

methods of detecting and avoiding pollution; familiarization with statutory and contractual pollution standards; installation and care of devices, vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control; anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of archaeological sites, artifacts, wetlands, and endangered species and their habitat that are known to be in the area.

3.14 CONTAMINATED MEDIA MANAGEMENT

Contaminated environmental media consisting of, but not limited to, ground water, soils, and sediments shall be managed in accordance with Section 02316a EXCAVATION, TRENCHING AND BACKFILLING FOR UTILITIES SYSTEMS.

3.15 POST CONSTRUCTION CLEANUP

The Contractor shall clean up all areas used for construction in accordance with Contract Clause: "Cleaning Up". The Contractor shall, unless otherwise instructed in writing by the Contracting Officer, obliterate all signs of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed area shall be graded, filled and the entire area seeded unless otherwise indicated.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01566

(NORTH DAKOTA) NPDES PERMIT REQUIREMENTS FOR STORM WATER DISCHARGES FROM CONSTRUCTION SITES

03/03

-- End of Section Table of Contents --

SECTION 01566

(NORTH DAKOTA) NPDES PERMIT REQUIREMENTS
FOR STORM WATER
DISCHARGES FROM CONSTRUCTION SITES
03/03

Attachments: Copy of the "Authorization To Discharge Under the North Dakota Pollutant Discharge Elimination System"
Permit No. NDR03-0000
Notice of Intent
Notice of Termination
Construction Storm Water Pollution Prevention Plan Guidance Forms
Site Inspection Record
Annual Location Record

PART 1 GENERAL

1.1 REFERENCES (Not Applicable)

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Storm Water Pollution Prevention Plan; G-AO.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall be responsible for implementing the terms and requirements of the attached "Authorization To Discharge Under The North Dakota Pollutant Discharge Elimination System" NDPDES General Permit for storm water discharges from construction sites and the Storm Water Pollution Prevention Plan. The Contractor shall be considered the "permittee". All submissions to the State shall be by certified mail. Copies of the return receipt for each submission shall be included with the submittal to the Contracting Officer's Representative (COR).

3.2 IMPLEMENTATION

3.2.1 Notice of Intent

The Contractor shall complete and submit a Notice of Intent (NOI) in accordance with the NDPDES general permit. A copy of the submitted Notice

of Intent shall be furnished to the COR at least 2 days prior to the commencement of construction activities.

3.2.2 Storm Water Pollution Prevention Plan

The Contractor shall prepare, submit and implement a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the NDPDES general permit. Any temporary or permanent erosion and sedimentation control measures shown on the drawings shall be incorporated into the Contractor's SWPPP. A copy of the SWPPP shall be submitted for approval at least 10 calendar days prior to submission of the SWPPP to the State. A copy of the approved SWPPP shall be furnished to the Base Environmental Office. The Contractor shall modify the SWPPP whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the water of the state, or if the SWPPP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity.

3.2.3 Inspections and Reporting

The Contractor shall be responsible for all inspections and reporting required under the NDPDES general permit. Copies of each Site Inspection Report Form shall be furnished to the COR and the Base Environmental Office.

3.2.4 Retention of Records

The Contractor shall retain copies of the SWPPP and all reports in accordance with NDPDES general permit.

3.2.5 Notice of Termination

If required by the NDPDES general permit, the Contractor shall complete and submit a Notice of Termination. A copy of the submitted Notice of Termination shall be furnished to the COR and the Base Environmental Office.

3.2.6 Annual Location Record

If applicable, the Contractor shall submit a copy of the Annual Location Record in accordance with the NPDES general permit.

3.2.7 Renotification

If the current NDPDES general permit expires prior to completion of construction, the Contractor shall request to retain coverage under a renewal of the permit in writing to the State at least 15 days prior to the expiration date of the permit. Upon request by the State, a new NOI shall be submitted. A copy of all submissions to the State shall be furnished to the COR.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 08 - DOORS AND WINDOWS

SECTION 08130

STAINLESS STEEL DOORS AND FRAMES

-- End of Section Table of Contents --

SECTION 08130

STAINLESS STEEL DOORS AND FRAMES

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A250.6	(1997) Hardware on Standard Steel Doors (Reinforcement - Application)
SDI A250.8	(1998) SDI-100 Recommended Specifications for Standard Steel Doors and Frames

ASTM INTERNATIONAL (ASTM)

ASTM A 167	(1999) Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)

BHMA A115	(Set - Spec dates Vary) Steel Preparation Standards (Incl A115.1 (1990), A115.2 (1987), A115.4 (1994), A115.5 (1992), A115.6 (1993), A115.12 (1994), A115.13 (1991), A115.14 (1994), A115.15 (1994), A115.16 (1990), A115.17 (1994), A115.18 (1994)

STEEL DOOR INSTITUTE (SDI)

SDI 105	(2001) Recommended Erection Instructions for Steel Frames

1.2 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittal Procedures."

SD-02 Shop Drawings

Doors; G-AE

Frames; G-AE

Accessories; G-AE

Show elevations, construction details, metal gages, hardware provisions, method of glazing, and installation details.

Schedule of doors; G-AE

Schedule of frames; G-AE

Submit door and frame locations.

SD-03 Product Data

Doors; G-AE

Frames; G-AE

Accessories; G-AE

Submit manufacturer's descriptive literature for doors, frames, and accessories. Include data and details on door construction, panel (internal) reinforcement, insulation, and door edge construction. Provide additional details and data sufficient for comparison to SDI A250.8 requirements.

SD-04 Samples

Factory Finish; G-AE

Submit finish samples minimum 3 inches by 4 inches by actual thickness of door and frame material.

1.3 DELIVERY, STORAGE, AND HANDLING

Deliver stainless steel doors, frames, and accessories undamaged and with protective wrappings or packaging. Provide temporary steel spreaders securely fastened to the bottom of each welded frame. Store doors and frames on platforms under cover in clean, dry, ventilated, and accessible locations, with 1/4 inch airspace between doors. Remove damp or wet packaging immediately and wipe affected surfaces dry. Replace damaged materials with new.

PART 2 PRODUCTS

2.1 STAINLESS STEEL DOORS

Prepare doors to receive hardware specified in Section 08710, "Door Hardware." Doors shall have seamless edges and sealed top. Doors shall be 1 3/4 inches thick fabricated from 16 gage type #304 stainless steel conforming to ASTM A 167. All steel component parts used in stainless doors shall be stainless. Hinge reinforcements shall be minimum 12 gage and lock reinforcements shall be minimum 18 gage. Construction shall be similar to SDI A 250.8, Level 2, physical performance Level B, with polystyrene insulation core completely filling the inside of the doors and laminated to inside faces of both panels using contact adhesive applied to both panels and the core.

2.2 ACCESSORIES

2.2.1 Moldings

Provide moldings around glass of interior doors. Provide nonremovable moldings on corridor side of interior doors. Other moldings may be stationary or removable. Secure inside moldings to stationary moldings, or provide snap-on moldings. Provide moldings of same material, gage and finish as door face.

2.3 STAINLESS STEEL FRAMES

SDI A250.8, except as otherwise specified. Form frames to sizes and shapes indicated, with welded corners. Provide stainless steel frames for stainless steel doors.

2.3.1 Welded Frames

Continuously weld frame faces at corner joints. Mechanically interlock or continuously weld stops and rabbets. Grind welds smooth.

2.3.2 Anchors

Provide anchors to secure the frame to adjoining construction. Provide stainless steel anchors not lighter than 18 gage.

2.3.2.1 Wall Anchors

Provide at least three anchors for each jamb. For frames which are more than 7.5 feet in height, provide one additional anchor for each jamb for each additional 2.5 feet or fraction thereof. For frames in stud partitions, weld or otherwise securely fasten anchors to backs of frames. Design anchors to be fastened to closed steel studs with sheet metal screws, and to open steel studs by wiring or welding.

2.3.2.2 Floor Anchors

Provide floor anchors drilled for 3/8 inch anchor bolts at bottom of each jamb member.

2.4 GASKETS

As specified in Section 08710, "Door Hardware."

2.5 HARDWARE PREPARATION

Provide minimum hardware reinforcing gages as specified in ANSI A250.6. Drill and tap doors and frames to receive finish hardware. Prepare doors and frames for hardware in accordance with the applicable requirements of SDI A250.8 and ANSI A250.6. For additional requirements refer to BHMA A115. Drill and tap for surface-applied hardware at the project site. Build additional reinforcing for surface-applied hardware into the door at the factory. Locate hardware in accordance with the requirements of SDI A250.8, as applicable. Set lock strikes out to provide clearance for gaskets.

2.6 FINISHES

2.6.1 Factory Finish

All surfaces of doors and frames shall be thoroughly cleaned and exposed surfaces polished to a number 4 matte finish.

2.7 FABRICATION AND WORKMANSHIP

Finished doors and frames shall be strong and rigid, neat in appearance, and free from defects, waves, scratches, cuts, dents, ridges, holes, warp, and buckle. Molded members shall be clean cut, straight, and true, with joints coped or mitered, well formed, and in true alignment. Dress exposed welded joints smooth. Design door frame sections for use with the wall construction indicated. Corner joints shall be well formed and in true alignment. Conceal fastenings where practicable.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Frames

Set frames in accordance with SDI 105. Plumb, align, and brace securely until permanent anchors are set. Anchor bottoms of frames with expansion bolts or powder-actuated fasteners. Build in or secure wall anchors to adjoining construction.

3.1.2 Doors

Hang doors in accordance with clearances specified in SDI A250.8. After erection and glazing, clean and adjust hardware.

3.2 PROTECTION

Protect doors and frames from damage. Repair damaged doors and frames prior to completion and acceptance of the project or replace with new, as directed.

3.3 CLEANING

Upon completion, clean exposed surfaces of doors and frames thoroughly. Remove mastic smears and other unsightly marks.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 08 - DOORS AND WINDOWS

SECTION 08220

FIBERGLASS REINFORCED PLASTIC DOORS AND FRAMES

-- End of Section Table of Contents --

SECTION 08220

FIBERGLASS REINFORCED PLASTIC DOORS AND FRAMES

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A250.4	(2001) Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frame Anchors and Hardware Reinforcings

ASTM INTERNATIONAL (ASTM)

ASTM D 635	(1998) Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position
ASTM E 152	(1981ae2) Standard Methods of Fire Tests of Door Assemblies
ASTM E 84	(2001) Surface Burning Characteristics of Building Materials

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 252	(1999) Fire Tests of Door Assemblies
NFPA 80	(1999) Fire Doors and Fire Windows

UNDERWRITERS LABORATORIES (UL)

UL 10C	(1998) Standard for Positive Pressure Fire Tests of Door Assemblies

1.2 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittal Procedures."

SD-02 Shop Drawings

Doors; G-AE

Frames; G-AE

Door Accessories; G-AE

Show elevations, construction details, material thicknesses, hardware provisions, method of glazing, and installation details.

Schedule of doors; G-AE

Schedule of frames; G-AE

Submit door and frame locations.

SD-03 Product Data

Doors; G-AE

Frames; G-AE

Door Accessories; G-AE

Submit manufacturer's descriptive literature for doors, frames, and accessories. Include data and details on door construction, finish, fire rating data, panel (internal) reinforcement, core material, and door edge construction.

SD-04 Samples

Finish; G-AE

Submit selected gel coat color.

1.3 PERFORMANCE REQUIREMENTS

1.3.1 Fire Performance Characteristics

FRP component parts, including the gel coat finish, shall have a flame spread classification of 25 or less when tested in accordance with ASTM E 84 and shall be self extinguishing when tested in accordance with ASTM D 635.

1.4 DELIVERY, STORAGE, AND HANDLING

Deliver doors, frames, and accessories undamaged and with protective wrappings or packaging. Provide temporary spreaders securely fastened to the bottom of each frame. Store doors and frames in a vertical position on platforms under cover in clean, dry, ventilated, and accessible locations, with minimum 1/4 inch airspace between doors. Remove damp or wet packaging immediately and wipe affected surfaces dry. Replace damaged materials with new.

1.5 WARRANTY

Ten years free from defects in material and workmanship from date of shipment, and lifetime from degradation of failure due to corrosion from data of shipment.

PART 2 PRODUCTS

2.1 FIBERGLASS REINFORCED PLASTIC (FRP) DOORS

Products shall be provided by a single manufacturer, and shall be a standard product as shown in the most recent catalog data, except as

specified otherwise. Prepare doors to receive hardware specified in Section 08710, "Door Hardware." Exterior doors shall have top edge closed flush and sealed to prevent water intrusion. Doors shall be 1 3/4 inches thick, unless otherwise indicated, and conform to ANSI A250.4, modified, swing cycle test in excess of 1,000,000 cycles.

2.1.1 Face Sheets

Standard face sheets shall be manufactured using a corrosion resistant resin system with light stabilizing additives. The resin shall be reinforced with fiberglass, 40% by weight. Face sheets shall be 0.120 inches thick.

2.1.2 Finish

Finish shall be a custom gel coat color as specified in Section 09915 COLOR SCHEDULE. Gel coat shall be 15 mil thick (+,-3 mils) and provide a smooth, seamless finish.

2.1.3 Internal Construction

2.1.3.1 Core

Door shall have a 1-1/2 inches thick rigid block of polyurethane laminated to the interior of the panels unless noted otherwise. The "R" factor shall be minimum 11. Doors indicated to be fire rated shall have a mineral core fire-rated as indicated.

2.1.3.2 Stiles and Rails

Stiles and rails shall be 1-1/2 inches square pultruded fiberglass tubes. A polyester-based resin filled with 1/4 inch chopped glass strands and aerosil shall be used for reinforcements and corner blocks. The bottom rail shall allow 1-1/4 inches of height alterability without loss of the panel's integrity. No metal or wood lumber reinforcements will be allowed. Fire-rated openings shall be furnished in compliance with UL testing, and in accordance with ASTM E 152 and UL 10C.

2.1.4 Hardware Preparations

Reinforcement blocking for locksets, surface mounted hardware and thru-bolted hardware shall be non-swelling polymer blocking. Mortise hardware for full mortise hinges shall be non-swelling polymer blocking. Hardware preparation for mortise locksets and exit devices shall be to suit template provided.

2.1.5 Door Accessories

2.1.5.1 Glazing

Glazing support structures shall ensure that the glass area is weather-sealed as not to permit moisture to enter the core of the door. Utilize pultruded FRP tubes to fabricate the window opening. Glazing must allow for ready access for repair, in the event of damage or replacement, without affecting the sealed integrity of the cutout in the door panel. Openings cut directly into the core material will not be allowed. Glass stops shall be rigid polymer frame held in place by stainless steel fasteners.

2.1.5.2 Astragals

For interior paris of fire rated doors, provide stainless steel astragals complying with NFPA 80 for fire rated assemblies.

2.2 FIBERGLASS REINFORCED PLASTIC (FRP) FRAMES

FRP frames shall be fabricated by FRP door manufacturer. Form frames to sizes and shapes indicated, with welded corners. Provide FRP frames for FRP doors, unless otherwise indicated.

2.2.1 Corner Miter

Head and jamb members shall be standard 45 degree miter, providing a neatly mitered corner connection factory fabricated with resin weld, filled and gel coat finished. Pultrusion in compliance with pultrusion industry standards.

2.2.2 Reinforcements and Braces/Supports

Corner, mortise hinge, closer and strike reinforcement shall be manufacturer's standard pultruded fiberglass angles and polymer material attached to frame by means of bonding material, stainless steel countersunk screws or suitable polymer rivets as appropriate.

2.2.3 Anchors

Provide anchors to secure the frame to adjoining construction.

2.2.3.1 Wall Anchors

Provide at least three anchors for each jamb. For frames which are more than 7.5 feet in height, provide one additional anchor for each jamb for each additional 2.5 feet or fraction thereof.

a. Masonry: Provide anchors of corrugated or perforated steel straps or 3/16 inch diameter steel wire, adjustable or T-shaped;

b. Stud partitions: Securely fasten anchors to backs of frames. Design anchors to be fastened to closed steel studs with sheet metal screws, and to open steel studs by wiring or welding.

2.2.3.2 Floor Anchors

Provide floor anchors drilled for anchor bolts at bottom of each jamb member.

2.2.4 Finish

Gel coat shall be 15 mils thick (+, -3 mils) on all exposed surfaces. Color shall match door unless otherwise indicated.

2.3 FIRE FRAMES

Frames indicated to be fire-rated shall be fabricated from 16 gauge Type 316 stainless steel with a #4 finish to profiles indicated.

2.4 FIRE RATED OPENINGS

NFPA 80 and this specification. The requirements of NFPA 80 shall take precedence over details indicated or specified.

2.4.1 Labels

Fire doors and frames shall bear the label of Underwriters Laboratories (UL), Factory Mutual Engineering and Research (FM), or Warnock Hersey International (WHI) attesting to the rating required. Testing shall be in accordance with NFPA 252 or UL 10C. Labels shall be metal with raised letters, and shall bear the name or file number of the door and frame manufacturer. Labels shall be permanently affixed at the factory to frames and to the hinge edge of the door. Door labels shall not be painted.

2.5 FABRICATION AND WORKMANSHIP

Finished doors and frames shall be strong and rigid, neat in appearance, and free from defects, waves, scratches, cuts, dents, ridges, holes, warp, and buckle. Molded members shall be clean cut, straight, and true, with joints coped or mitered, well formed, and in true alignment. Dress exposed welded joints smooth. Design door frame sections for use with the wall construction indicated. Corner joints shall be well formed and in true alignment. Conceal fastenings where practicable. Doors and frames shall be mortised and reinforced for hardware in accordance with the hardware manufacturer's instructions and templates. The reinforcing shall be designed to receive hinges, locks, strikes, closers and other hardware indicated.

2.5.1 Grouted Frames

For frames to be installed in exterior walls and to be filled with mortar or grout, fill the stops with strips of rigid insulation to keep the grout out of the stops and to facilitate installation of stop-applied head and jamb seals.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Frames

Set frames in accordance with approved shop drawings and FRP manufacturer's written instructions. Plumb, align, and brace securely until permanent anchors are set. Anchor bottoms of frames with expansion bolts or powder-actuated fasteners. Build in or secure wall anchors to adjoining construction. Backfill FRP frames in masonry partitions with mortar. When an additive is provided in the mortar, coat inside of frames with corrosion-inhibiting bituminous material. For frames in exterior walls, ensure that stops are filled with rigid insulation before grout is placed.

3.1.2 Doors

Hang doors with clearances of 1/8 inch at jambs and heads and 3/8 inch above finish floor or threshold for standard doors and 1/4 inch above finish floor or threshold for fire doors. After erection and glazing, clean and adjust hardware.

3.1.3 Fire Doors and Frames

Install fire doors and frames, including hardware, in accordance with NFPA 80.

3.1.4 TOLERANCES

Diagonal distortion shall not exceed 1/4 inch measured with a straight edge, corner to corner. Maximum meaasurable plane is 4-0' x 7-0'.

3.2 PROTECTION

Protect doors and frames from damage. Repair damaged doors and frames prior to completion and acceptance of the project or replace with new, as directed.

3.3 CLEANING

Upon completion, clean thoroughly exposed surfaces of doors and frames in accordance with manufacturer's recommended cleaning techniques and procedures. Remove mastic smears and other unsightly marks.

-- End of Section --

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DIVISION 09 - FINISHES

SECTION 09200A

LATHING AND PLASTERING

12/03

-- End of Section Table of Contents --

SECTION 09200A

LATHING AND PLASTERING
12/03

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A108.1	(1999) Installation of Ceramic Tile; including A108.1A-C, 108.4-.13, 118.1-.10, A136.1

ASTM INTERNATIONAL (ASTM)

ASTM A 580/A 580M	(1998) Stainless Steel Wire
ASTM A 853	(1993; R 1998) Steel Wire, Carbon, for General Use
ASTM B 164	(1998) Nickel-Copper Alloy Rod, Bar, and Wire
ASTM C 29/C 29M	(1997) Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C 150	(2002a) Portland Cement
ASTM C 206	(1984; R 1997) Finishing Hydrated Lime
ASTM C 645	(2000) Nonstructural Steel Framing Members
ASTM C 754	(2000) Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products
ASTM C 841	(1999) Installation of Interior Lathing and Furring
ASTM C 847	(1995; R 2000) Metal Lath
ASTM C 897	(2000) Aggregate for Job-Mixed Portland Cement-Based Plasters
ASTM C 90	(2002) Loadbearing Concrete Masonry Units
ASTM C 91	(2001) Masonry Cement
ASTM C 926	(1998a) Application of Portland

	Cement-Based Plaster
ASTM C 933	(1996a; R 2001) Welded Wire Lath
ASTM C 1002	(2001) Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs
ASTM C 1032	(1996; R 2002) Woven Wire Plaster Base

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Approved Detail Drawings; G-AE

Drawings including installation details, ceiling framing, and furring.

SD-03 Product Data

Lathing Installation
Basecoat
Primer
Synthetic Finish

Manufacturer's pre-printed descriptive data, catalog cuts, and installation instructions for plastering materials and accessories.

SD-04 Samples

Portland Cement-Based Plaster; G-AE
Basecoat; G-AE
Synthetic Finish; G-AE

One minimum 12 inch square sample panel of each specified finish.

SD-07 Certificates

Qualifications

Manufacturer's experience in specified work.

1.3 QUALIFICATIONS

Manufacturer shall specialize in manufacturing the types of material specified, and shall have a minimum of 5 years of documented successful experience. Applicator shall specialize in the type of lath and plaster work required to meet requirements, with a minimum of 3 years of documented experience.

1.4 DELIVERY, STORAGE AND HANDLING

Materials shall be delivered to project site in the original containers bearing the name of manufacturer, contents, and brand name. Plaster, cement, and lime shall be stored off the ground under weathertight cover and away from sweating walls and other damp surfaces until ready for use. Accessories shall be stored off the ground in a weathertight structure for protection. Damaged or deteriorated materials shall be removed from project site.

1.5 ENVIRONMENTAL CONDITIONS

During basecoat and finish application of finish ceiling system, air temperature shall be at least 45 degrees F and shall remain at this temperature or higher for at least 24 hours after application. Finishes and basecoat shall not be applied to cement board that is wet, frozen, or contains frost. After application, and until set and cured, finishes shall be effectively protected from excessive moisture. Under rapid drying conditions, dampening of board or base coat surface may be required to improve workability of the base coat.

PART 2 PRODUCTS

2.1 NON-LOADBEARING WALLS

2.1.1 Studs

Studs for non-loadbearing walls shall conform to ASTM C 645. Studs shall be C-shaped, roll-formed steel with minimum uncoated design thickness of 0.0329 in made from G40 hot-dip galvanized coated sheet.

2.1.2 Runner Tracks

Prefabricated floor and ceiling runner tracks shall conform to ASTM C 645. Tracks shall be prefabricated, U-shaped, unpunched web, thickness to match studs, made from G40 hot-dip galvanized coated sheet.

2.2 METAL WALL FURRING

Metal wall furring channels shall conform to ASTM C 645. Furring channels shall be formed from cold-rolled steel, 3/4 inch wide by 7/16 inch deep, made from G40 hot-dip galvanized coated sheet.

2.3 SUSPENDED CEILING FRAMING

Suspended ceiling framing system shall have the capability to support the finished ceiling, light fixtures, air diffusers, and accessories, as shown. The suspension system shall have a maximum deflection of L/360. Carrying channels shall be formed from minimum 0.0548 inch thick cold-rolled steel, 1-1/2 inch wide by 7/16 inch deep. Cross furring members shall conform to ASTM C 645, and shall be formed from minimum 0.0359 inch thick cold-rolled steel, 3/4 inch wide by 7/16 inch deep. Carrying channels and furring members shall be made from hot-dip galvanized coated sheet equivaleant to G60.

2.4 TRIM, MOLDINGS, AND ACCESSORIES

2.4.1 Hangers

Suspended ceiling runner channel hangers shall be monel wire not less than No. 8 SWG nominal diameter.

2.4.2 Fastenings

Tie wire, rings, and other fastenings shall be monel or corrosion-resisting steel conforming to ASTM A 580/A 580M, composition 302, 304, or 316, Condition A, or nickel-copper alloy conforming to ASTM B 164, annealed condition. Walls, partitions, and other vertical surfaces not incorporated in ceiling construction may be erected with soft, annealed steel conforming to ASTM A 853. Surfaces incorporated in suspended ceiling construction shall be fastened with materials conforming to cementitious backer unit manufacturer's published instructions.

2.4.2.1 Tie Wire

Tie wire for constructing partitions and vertical furring, for securing metal lath to supports, for suspended ceiling grillage and for lacing shall be not less than No. 18 SWG diameter.

2.4.2.2 Clips

Clips used in lieu of tie wire for securing furring channels to the runner channels in ceiling construction shall be made from strips not less than 1/8 inch thick or shall be hairpin clip formed of No. 8 SWG wire. Other clips and rings or fastenings of similar materials shall be equivalent in holding power to that provided by tie wire for the specific application.

2.4.3 Arch, Flexible Corner Beads

Flexible corner beads shall be fabricated of aluminum, vinyl, 0.0210 inch thick galvanized steel, 0.030 inch thick zinc alloy, with minimum 1-1/4 inch wide flanges and 1/8 inch thick bead, designed to bend without buckles, kinks, or breaks in the nose.

2.4.4 Casing Beads

Casing beads shall be J-trim or L-trim fabricated of galvanized 0.0276 inch thick steel 1/2 or 3/4 inch depth as appropriate, 12 inch wide expansion wings, front edge of face flange shaved for intended use, back slightly arched to provide a spring effect.

2.4.5 Control Joints

Control joints shall be designed for expansion and contraction of plaster work due to thermal exposure. Control joints shall be fabricated of 0.030 inch thick zinc alloy, with perforated or expanded-metal wings.

2.4.6 Screws

Self-drill steel screws shall conform to ASTM C 1002. Screws shall be Type S for use with steel framing.

2.5 METAL LATH

2.5.1 Expanded Metal Lath

Expanded metal lath shall conform to ASTM C 847. Lath shall be flat base lath, self-furring lath, flat rib lath or rib lath, expanded from cold-rolled carbon sheet steel of commercial quality, coated with rust-inhibitive paint after fabrication, 3.4 pounds per square yard, without backing.

2.5.2 Welded Wire Lath

Welded wire lath shall conform to ASTM C 933. Lath shall be flat base or self-furring type, fabricated from not less than 0.0625 inch copper-bearing, cold-drawn, galvanized steel wire, without backing.

2.5.3 Woven Wire Lath

Woven wire lath shall conform to ASTM C 1032. Lath shall be flat base or self-furring type with or without stiffeners, without backing fabricated from copper-bearing, cold-drawn, galvanized steel wire not less than 0.0548 inch thick, with openings not to exceed 2 x 2 inch welded.

2.6 CEMENT PLASTER MATERIALS

2.6.1 Portland Cement

Portland cement shall conform to ASTM C 150, gray portland cement Type I for scratch and brown coats, and white portland cement Type I, for finish coat, with 1/2 inch chopped alkali-resistant fiberglass strands or polypropylene fibers, minimum 1-1/2 pounds per sack of cement.

2.6.2 Aggregates

The unit weight of aggregates shall be determined in accordance with ASTM C 29/C 29M. Portland cement based plaster aggregates shall conform to ASTM C 897, except that the gradation of natural or manufactured sand for portland-cement plaster shall be as follows:

Sieve Size (inches)	Sand, Percentage by Weight Retained on Each Sieve	
	Maximum	Minimum
4	0	--
8	8	2
16	38	22
30	78	52
50	97	65
100	100	97

2.6.3 Water

Water shall be clean, fresh, potable, and free from injurious amounts of oils, acids, alkalis and organic matter injurious to the plaster and to any metal in the system.

2.6.4 Lime

Lime shall conform to ASTM C 206, Type N-Normal hydrated finishing lime suitable for use in scratch brown and finish coats of portland-cement plaster.

2.6.5 Masonry Cement

Masonry cement shall conform to ASTM C 91, suitable for use in scratch and brown coats of portland-cement plaster.

2.7 SUSPENDED CEILING MATERIALS

2.7.1 Cementitious Backer Units

ANSI A108.1

2.7.2 Joint Reinforcement

Open weave glass fiber tape, 4 inches wide.

2.7.3 Acrylic Emulsion for Basecoat

Manufacturer's standard acrylic emulsion with graded mineral aggregates and proprietary ingredients.

2.7.4 Fiberglass Mesh

Basecoat manufacturer's standard product, 4.5 ounces per square yard treated for alkaly resistivity.

2.7.5 Primer

Basecoat manufacturer's standard product.

2.7.6 Synthetic Finish

Factory blended, 100 percent acrylic polymer based synthetic finish, integrally colored with light sanded finish.

2.8 WALL OPENING FRAMES

Steel frames for wall openings for borrowed lights and access panels shall be as specified in Section 08110 STEEL DOORS AND FRAMES.

PART 3 EXECUTION

3.1 PREPARATION

Project conditions shall be verified as ready to receive the work. Field measurements shall be verified for compliance with approved detail drawings and manufacturer's published recommendations. Beginning of installation means installer accepts existing conditions.

3.2 SUSPENDED CEILING FRAMING INSTALLATION

Suspended system shall be installed in accordance with ASTM C 841 and as specified as follows. Where channels are spliced, the ends shall be overlapped not less than 12 inches for 1-1/2 inch channels and not less than 8 inches for 3/4 inch channels with flanges of channels interlocked and securely tied near each end of the splice with two loops of the tie wire. Splices shall be staggered.

3.2.1 Hangers

Wire or strap hangers shall be attached to structural members in accordance with ASTM C 841, except hangers shall be spaced not more than 48 inches along runner channels and 36 inches in the other direction or 42 inches in both directions unless otherwise indicated or approved. Locations of hangers shall be coordinated with other work. Hangers at ends of runner channels shall be located not more than 6 inches from wall. Hanger wire shall be looped around bottom chord of open-web steel joist or secured to structural elements with suitable fasteners. Sags or twists in the suspended system shall be adjusted. Damaged or faulty parts shall be replaced.

3.2.2 Main Runners

Main runner channels shall be installed in accordance with ASTM C 841 and as specified as follows. Hanger wire shall be saddle-tied to runner channels, and the end of hanger wires shall be twisted three times around itself. Provide 1 inch clearance between main runners and abutting walls and partitions. Main runners shall be located within 6 inches of the paralleling wall to support the ends of cross furring.

3.2.3 Furring Channels

Furring channels shall be spaced a maximum of 16 inches on center and within 3 inches of walls. Furring channels shall be securely saddle-tied to the runner channels and to structural supports at each crossing with double strand tie wire, hairpin clips, or equivalent clips or fastenings. Furring channels shall be located within 2 inches of parallel walls and beams, and 1 inch from abutting walls.

3.2.4 Light Fixtures and Air Diffusers

Light fixtures and air diffusers shall be supported directly from suspended ceiling runners. Wires shall be provided at appropriate locations to carry the weight of recessed or surface mounted light fixtures and air diffusers. At light troffers or any openings that interrupt the carrying or furring channels, install additional cross reinforcing to restore lateral stability of the grillage.

3.3 WALL FRAMING INSTALLATION

3.3.1 Non-Loadbearing Wall Framing

Nonload-bearing steel studs shall be installed in accordance with ASTM C 754 with spacings as indicated in ASTM C 841 for the type of lath used. Studs shall be aligned and secure in top and bottom runners at spacings indicated on drawings. Two beads of acoustic sealant shall be placed between runners and substrate to achieve the required air seal. Stud splicing is not

acceptable. Corners shall be constructed with a minimum of three studs. Stud framing system shall be braced and made rigid.

3.3.2 Adjoining Walls and Columns

Studs which adjoin walls or columns shall be secured near the top and bottom, and at least one intermediate point, but not more than 5 feet on centers, with wire inserts, dovetail anchors, toggle bolts, or bolts set in expansion shields.

3.3.3 Corners and Intersection

Corners and intersections of partitions shall be formed of three studs. Studs at internal corners shall be placed not more than 2 inches from partition intersection.

3.4 LATHING INSTALLATION

3.4.1 Metal Lath on Vertical Surfaces

Metal lath shall be applied with the long dimension across the supports, with true even surfaces, and without sags or buckles in accordance with ASTM C 841. Metal lath on vertical surfaces shall be oriented to provide maximum mechanical bond with plaster and the upper sheet shall be attached to overlap the lower sheet. The lath shall be secured to supports at intervals not exceeding 6 inches. Tie wires, rings, clips, or other approved fasteners having equivalent holding power of the tie wires shall be used for securing the plaster base to metal supports and to concrete or masonry. Side-laps or junction of sides of plaster base shall be tied or otherwise secured at intervals not exceeding 9 inches between supports, in addition to being secured to supports.

3.4.2 Side and End Laps

Side and end laps of metal plaster bases shall be performed in accordance with ASTM C 841 for flat lath and ribbed lath.

3.4.3 Recesses

Recesses shall be lathed for plastering. Openings over 12 inches wide shall be bridged with furring channels spaced 12 inches on centers. Openings 12 inches wide and less do not need to be bridged. Lath shall extend 3 inches beyond the edges of opening. Lath shall be securely fastened by nailing or tying. Lath shall be securely fastened with screws or wire ties.

3.5 INSTALLATION OF CEMENTITIOUS BACKER UNITS TO RECEIVE BASECOAT

Cementitious backer units shall be installed with long edges either parallel or perpendicular to the framing and with rough side exposed. Fit abutting ends and edges closely, but not forced together. Maximum gap between panels shall be 1/8 inch. Stagger end joints in successive courses. Position all edges over framing members, with a minimum 5/8 inch bearing, for parallel application; all ends over framing members, with a minimum 5/8 inch bearing, for perpendicular application Fasten backer units along the framing members with screws spaced a maximum of 6 inches o.c. Position perimeter fasteners at least 3/8 inch and less than 5/8 inch from ends and edges. Drive fasteners in field of panel first, working towards ends and edges. Hold panel in firm contact with framing while

driving fasteners. Drive fasteners so bottom of heads are flush with surface of panel to provide firm panel contact with framing. Do not drive fastener heads below panel surface.

3.5.1 Joint Treatment

Cementitious backer unit joints shall be prefilled with basecoat. Tape shall be immediately embedded into the basecoat and the basecoat leveled as flush to the board surface as the tape will allow. Feather the basecoat from the edges of the tape into the field of the board a minimum of 4 inches. As an alternative, apply tape over the joint and force the basecoat through the tape to completely fill the joint. Feather edges as above. Treated joints shall be allowed to cure for a minimum of 4 hours before basecoating.

3.6 OPENINGS

3.6.1 Steel Frames

Steel frames shall be securely attached through built-in anchors to the nearest stud on each side of opening with tie wire, bolts, screws, or welding or bracing where bracing is specified. Steel frames shall be grouted solid with plaster grout and a groove shall be formed within the frame returns to receive lath and plaster.

3.6.2 Ceiling Openings

Framing shall be provided for ceiling openings and supplemental supporting members for items mounted in ceiling or attached to ceiling suspension system. Frames for openings shall be secured to support members. Intermediate structural members shall be provided for attachment or suspension of support members.

3.7 INSTALLATION OF TRIM, MOLDINGS, AND ACCESSORIES

Trim, moldings, and accessories shall be installed in standard lengths level and plumb to straight lines and as indicated on drawings. Fastenings shall be spaced not over 12 inches on centers for single-flanged accessories and not over 24 inches on centers on each flange of double-flanged accessories. Items shall be mitered or coped at corners, or prefabricated corners shall be used. Joints in straight runs shall be formed with splice or tie plates.

3.7.1 Corner Beads

Corner beads shall be installed in standard lengths at external plastered corners, and shall be secured to furring members or supports.

3.7.2 Expansion and Control Joint Beads

Expansion joint beads shall be installed as control joints in plasterwork at the locations indicated. Plaster base shall not be run continuous through control joints. Additional supports shall be installed as required to support the beads.

3.7.2.1 Control Joints in Cementitious Backer Units

Surface control joints in cementitious backer units shall be installed 20 ft. o.c. maximum in both directions. Leave a continuous 1/2 inch gap between units for insertion of control joint or for sealant backer and sealant. Backer unit edges and each flange of the control joint shall be supported and attached to a framing member with screws spaced maximum of 16 inches o.c. Additional attachment shall be provided with 1/2 inch crown, stainless staples, driven into the units, spaced as necessary to hold flanges tight to board. Cover the flanges of the control joint with basecoat. Feather the basecoat from control joint grounds into the field of the board a minimum of 4 inches and allow to cure for a minimum of 4 hours before basecoating. Location of control joints shall be as shown on the drawings.

3.7.3 Trim

Trim shall be installed where indicated and as required to complete the plaster work.

3.7.3.1 Trim Accessories for Cementitious Backer Units

Trim accessories shall be fastened to the framing members with screws spaced maximum of 16 inches o.c. Additional attachment shall be provided with 1/2 inch crown, stainless staples, driven into the units, spaced as necessary to hold flanges tight to board. Cover the flanges of the trim accessories with basecoat. Feather the basecoat from accessory grounds into the field of the board a minimum of 4 inches and allow to cure for a minimum of 4 hours before basecoating.

3.8 PLASTER THICKNESS AND SURFACE EVENNESS

Plaster thickness and surface evenness shall be controlled by grounds or screeds of metal or plaster. Plaster thickness shall be as shown.

3.8.1 Grounds and Screeds

Grounds shall be used for securing trim items, and for finished corners and terminations. Screeds shall be installed for base screeds when wood or metal grounds are not required. Temporary screeds shall be installed when permanent screeds or grounds cannot be used. On completion of approved base coats, temporary screeds shall be removed and voids immediately filled with plaster.

3.8.2 Plaster Screeds

Plaster screeds shall be used within the plastered areas to supplement wood and metal grounds and screeds.

3.9 PLASTER GROUT

Plaster grout shall be scratch-coat material mixed to a non-fluid consistency. Plaster grout shall be used to fill steel frames.

3.10 PROPORTIONS AND MIXING

3.10.1 Portland Cement-Plaster Finish

The finish coat shall be proportioned and mixed in accordance with ASTM C

926, coat FL.

3.10.2 Basecoat for Cementitious Backer Units

Basecoat mix shall be 1 part acrylic emulsion to 1 part portland cement, ASTM C 150 Type I, by weight in accordance with manufacturer's instructions.

3.11 APPLICATION OF FINISHES

Plaster shall have a fine sand float finish. Basecoat for suspended ceilings shall have a smooth finish. Seal perimeter and control joints as specified in Section 07920 JOINT SELANTS with ASTM C 90, Class 25 sealant as recommended by synthetic finish and basecoat manufacturer.

3.11.1 Portland Cement-Based Plaster

Three-coat portland cement-based plaster shall be applied in accordance with ASTM C 926. The final coat shall be finished to a true and even surface free from rough areas, checks, or blemishes. Nominal plaster finish thickness shall be 3/4 inches.

3.11.2 Cementitious Backer Units

3.11.2.1 Basecoat

Trowel-apply in two passes, a 1/16 inch minimum thick, uniform layer of basecoat with fiberglass mesh over the entire surface after joint and trim areas have cured a minimum of 4 hours. Finish surface smooth and flat. Under rapid drying conditions, dampen surface as necessary to improve workability.

3.11.2.2 Primer

Apply primer to basecoat after drying.

3.11.2.3 Finish Coat

Apply synthetic finish in accordance with manufacturer's instructions to achieve finish specified.

3.12 PATCHING

Plaster showing oversanding, cracks, blisters, pits, checks, discoloration or other defects is not acceptable. Defective plaster work shall be removed and replaced with new plaster at the expense of Contractor. Patching of defective work will be permitted only when approved by the Contracting Officer. Patching shall match existing work in texture and color.

3.13 SAMPLES OF COMPLETED WORK

Samples of completed work may be taken by the Contracting Officer at any time for laboratory inspection and tests to determine conformance.

-- End of Section --

SECTION 13289

ASBESTOS ABATEMENT

PART – 1 GENERAL

1.1 REFERENCES

Federal Requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final Rules
Title 29, Part 1910, Section 1001 and
Part 1926, Section 1101 CFR

Respiratory Protection
Title 29, Part 1910, Section 134 CFR

Construction Industry
Title 29, Part 1926 CFR

Access to Employee Exposure and Medical Records
Title 29, Part 1910, Section 2 CFR

Hazard Communication
Title 29, Part 1910, Section 1200 CFR

Specifications for Accident Prevention Signs and Tags
Title 29, Part 1910, Section 145 CFR

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

Hazardous Substances
Title 29, Part 171 and 172 CFR

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

Asbestos Hazard Emergency Response Act (AHERA) Regulation Asbestos Containing Materials in Schools Final Rule & Notice Title 40, Part 763, Sub-part E CFR
Training Requirements of (AHERA) Regulation Asbestos Containing Materials in Schools Final Rule & Notice Title 40, Part 763, Sub-part E, Appendix C CFR

National Emission Standard for Hazardous Air Pollutants (NESHAPS) National Emission Standard for Asbestos Title 40, Part 61,Sub-part A, and Sub-part M (Revised Sub-part B) CFR (as revised November 20, 1990).

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

MINE SAFETY AND HEALTH ADMINISTRATION (MSHA)

Non-federal requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials are incorporated in this specification by reference.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Pre Construction Submittals

Respiratory Protection Program; G-AO

Submit Contractor's written respiratory protection program manual required by OSHA 1926.1101.

Historic Airborne Fiber Data; G-AO

Submit airborne asbestos fiber count data from an independent air monitoring firm to substantiate selection of respiratory protection proposed. Data submitted shall include at least the following for each procedure required by the work:

1. Date of measurements.
2. Operation monitored.
3. Sampling and analytical methods used and evidence of their accuracy.
4. Number, duration, and results of samples taken.

SD-06 Test Reports

Report from Medical Examination; G-AO

Submit report of medical examination conducted within last 12 months in compliance with OSHA medical surveillance requirements for each worker who is to enter the Work Area. Submit, at a minimum, for each staff member the following:

a. Name and Social Security Number

b. Physicians Written Opinion from examining physician including at a minimum the following:
    1. Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to asbestos.
    2. Any recommended limitations on the worker or on the use of personal protective equipment such as respirators.
    3. Statement that the worker has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.
c. Copy of information that was provided to physician in compliance with 29 CFR 1926.
d. Statement that worker is able to wear and use the type of respiratory protection proposed for the project, and is able to work safely in an environment capable of producing heat stress in the worker.

SD-07 Certificates

AHERA Accreditation; G-AO

Submit copies of certificates from an EPA-approved AHERA Abatement Workers course for each worker as evidence that each asbestos Abatement Worker is accredited as required by the AHERA Regulation 40 CFR 763 Appendix C to Subpart E, April 30, 1987.

Abatement Staff Certification and Licensing; G-AO

Submit copies of certificates and licenses that all abatement staff have been trained, certified and accredited as required by jurisdictional authority.

1.3 QUALITY ASSURANCE

1.3.1 Personnel Requirements

a. All abatement staff and supervisors assigned to this project are required to be in possession of valid and current asbestos certifications from the State of North Dakota Department of Health.
b. Asbestos Abatement Contractor: The contractor selected to perform asbestos related work for this project will be required to be licensed by the State of North Dakota to perform asbestos related work.
c. Abatement Contractor General Superintendent: Provide a full-time General Superintendent who is experienced in administration and supervision of asbestos abatement projects including work practices, protective measures for building and personnel, disposal procedures, etc. This person is the Contractor's Representative responsible for compliance with all applicable

federal, state and local regulations, particularly those relating to asbestos-containing materials.

1. Experience and Training: The General Superintendent must have completed a course at an EPA Training Center or equivalent certificate course in asbestos abatement procedures, and have had a minimum of two (2) years on-the-job training in asbestos abatement procedures.
2. Competent Person: The General Superintendent is to be a Competent Person as required by OSHA in 29 CFR 1926.
3. Accreditation: The General Superintendent is to be accredited as an Asbestos Abatement Supervisor in accordance with the AHERA regulation 40 CFR Part 763, Subpart E, Appendix C.

d. Abatement Staff: All abatement staff are to be accredited as Abatement Workers as required by the AHERA regulation 40 CFR 763 Appendix C to Subpart E, April 30, 1987.

1.3.2 Medical Examinations

Provide medical examinations for all abatement staff that may encounter an airborne fiber level of 0.1 f/cc or greater for an 8 hour Time Weighted Average. In the absence of specific airborne fiber data provide medical examinations for all personnel who will enter the Work Area for any reason. Examination shall as a minimum meet OSHA requirements as set forth in 29 CFR 1926 In addition, provide an evaluation of the individuals ability to work in environments capable of producing heat stress in the worker.

1.3.3 Pre-Construction Conference

Attend a "Pre-Construction Conference" convened by the Owner's Representative prior to start of any work. Meet at project site, or as otherwise directed with General Superintendent, Owner, Owner's Representative, Project Administrator, and other entities concerned with the asbestos abatement work. Review responsibilities and personnel assignments and to locate the containment and decontamination areas and temporary facilities including power, light, water, etc.

1.3.4 Notices

Send Written Notification required by USEPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) Asbestos Regulations (40 CFR 61, Subpart M) and North Dakota Air Pollution Control Rules Section 33-15-13-02 to the regional Asbestos NESHAPS Contact at least 10 days prior to beginning any work on asbestos-containing materials. Send notification to the following address:

North Dakota Department of Health
1200 Missouri Avenue
P.O. Box 5520

Bismarck, ND 58502-5520
(800) 227-8917

1.4 TESTING AND SAMPLING

1.4 Personnel monitoring

Perform air monitoring as required to meet OSHA requirements for maintenance of Time Weighted Average (TWA) fiber counts for types of respiratory protection provided. Owner will not perform air monitoring to meet these requirements. Provide copies of personnel monitoring performed to the Owner's Representative within 24 hours.

1.4.1 Documentation

Testing documentation to comply with all applicable federal and state regulations. Maintain a permanent testing log for the entire time that work is in progress at that site. Document all test designs and all air samples taken, including date, time, type, phase, and time span of sample. Indicate whether sample was for before start of work, daily work sample, or for final work area clearance. Identify with all samples with a unique number and location description. Report all results and interpretations to the Owner's Representative and Contractor according to the number and location description entered in the permanent log. At the completion of the project, supply the Owner with one good, readable copy of every entry, in the on-site testing log. Provide documentation acceptable to the Owner of the Social Security and State Certification numbers for all personnel participating in this project.

1.4.1 Laboratory testing

Employ the services of a testing laboratory to perform laboratory analysis of the air samples. A microscope and technician will be set up at the job site, so that verbal reports on air samples can be obtained immediately. A complete record, certified by the testing laboratory, of all air monitoring tests and results will be furnished to the Owner's Representative, the Owner, and the Contractor.

1.4.2 Analytical methods

Use the following methods for air monitoring in analyzing filters used to collect air samples. Sampling rates may be varied from printed standards to allow for high volume sampling.

a. Phase Contrast Microscopy (PCM) will be performed using the NIOSH 7400 method. This analysis will be carried out at the job site.

1.4.3 Schedule of air samples

Prior to commencement of work secure the following Air Samples to establish a base line before start of work:

Sample Cassettes: Collect samples on 25 mm. cassettes as follows:

PCM: 0.8 micrometer mixed cellulose ester.

Sampling sensitivity in the table below refers to:

Quantification Limit for PCM analysis as set forth in the analytical method used.

Location Sampled	Number of Samples	Sampling Analysis Method	Minimum Sensitivity Fibers/cc.	Volume (Liters)	Rate LPM
Outside Each Work Area	5**	PCM	0.01	2,000**	1-10

** or as determined by on-site project monitor or air sampling professional.

Base Line: An action level expressed in fibers per cubic centimeter, which is twenty-five percent greater than the largest of the following:

Average of the PCM samples collected outside each Work Area.

Average of the PCM samples collected outside the building fibers per cubic centimeter.

Daily:

Take the following samples on a daily basis.
Collect samples on 25 mm. cassettes with the following filter media:

PCM: 0.8 micrometer mixed cellulose ester.

Location Sampled	Number of Samples	Quantification Analysis Method	Minimum Limit Fibers/cc.	Volume (Liters)	Rate LPM

Outside Each Work Area at Critical Barrier	1	PCM	0.01	1,200*	1-10
Outside Exit of Clean Room	1	PCM	0.01	1,200*	1-10
Outside Exit of Equip Decon	1	PCM	0.01	1,200*	1-10

Additional samples may be required at Owner's or Owner's Representative's discretion. If airborne fiber counts exceed allowed limits additional samples will be taken as necessary to monitor fiber levels.

Written Reports of all air monitoring tests will be posted at the job site on a daily basis.

Furnish a complete record of all air monitoring and results to the Owner's Representative, the Owner, and the Contractor.

PART – 2 PRODUCTS

2.1 HEPA FILTERED FAN UNITS

2.1.1 Cabinet

Construct shell of durable materials able to withstand damage. Make width of the cabinet less than 30 inches. Provide units whose cabinets are:

a. Factory-sealed to prevent asbestos-containing dust from being released during use, transport, or maintenance.
b. Arranged to provide access to and replacement of all air filters from intake end.
c. Mounted on casters or wheels.

2.1.2 Fans

Rate capacity of fan according to usable air-moving capacity under actual operating conditions.

2.1.3 HEPA Filters

Provide units whose final filter is the HEPA type with the filter media (folded into closely pleated panels) completely sealed on all edges with a structurally rigid frame.

a. Provide units with a continuous rubber gasket located between the filter and the filter housing to form a tight seal.
b. Provide HEPA filters that are individually tested and certified by the manufacturer to have an efficiency of not less than 99.97 percent when challenged with 0.3 um.
c. Provide filters that are marked with: the name of the manufacturer, serial number, air flow rating, efficiency and resistance, and the direction of test air flow.

2.1.4 Pre-filters

Two stages of pre-filtration are required. Provide units with the following pre-filters:

a. First-stage pre-filter: Low-efficiency type (e.g., for particles 100 um and larger).
b. Second-stage (or intermediate) filter: medium efficiency (eg., effective for particles down to 5 um)

2.1.5 Unit filters

Provide units with pre-filters and intermediate filters either on or in the intake grid of the unit and held in place with housings or clamps. Install new pre-filters after arrival on site.

2.2 PROTECTIVE CLOTHING

2.2.1 Coveralls

Provide disposable full-body coveralls and disposable head covers, and require that they be worn by all personnel in the Work Area. Provide a sufficient number for all required changes, for all personnel in the Work Area.

2.2.2 Boots

Provide work boots with non-skid soles, and where required by OSHA, foot protection, for all workers. Provide boots at no cost to personnel. Paint uppers of all boots red with waterproof enamel. Do not allow boots to be removed from the Work Area for any reason, after being contaminated with asbestos-containing material. Dispose of boots as asbestos-contaminated waste at the end of the work.

2.2.3 Hard Hats

Provide OSHA compliant head protection (hard hats) for all personnel. Label hats with same warning labels as used on disposal bags. Require hard hats to be worn at all times that work is in progress that may potentially cause head injury. Provide hard hats of type with plastic strap type suspension. Require hats to remain in the Work Area throughout the work. Thoroughly clean, decontaminate and bag hats before removing them from Work Area at the end of the work.

2.2.4 Goggles

Provide OSHA compliant eye protection (goggles) for all personnel involved in scraping, spraying, or any other activity, which may potentially cause eye injury. Thoroughly clean, decontaminate and bag goggles before removing them from Work Area at the end of the work.

2.2.5 Gloves

Provide work gloves to all personnel and require that they be worn at all times in the Work Area. Do not remove gloves from Work Area. Dispose of as asbestos-contaminated waste at the end of the work.

2.3 RESPIRATORY PROTECTION

2.3.1 Type of Required Respiratory Protection

Provide respiratory protection through determining the proper level of protection by dividing the expected or actual airborne fiber count in the Work Area by the "protection factors" given below. The level of respiratory protection which supplies an airborne fiber level inside the respirator, at the breathing zone of the wearer, at or below the permissible exposure limit (PEL) is the minimum level of protection allowed.

2.3.2 Respirator Construction

a. Respirator Bodies: Provide half face or full face type respirators. Equip full face respirators with a nose cup or other anti-fogging device as would be appropriate for use in air temperatures less than 32 degrees fahrenheit.
b. Filter Cartridges: Provide, at a minimum, HEPA type filters labeled with NIOSH and MSHA Certification for "Radionuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists" and color coded in accordance with ANSI Z228.2 (1980). In addition, a chemical cartridge section may be added, if required, for solvents, etc., in use. In this case, provide cartridges that have each section of the combination canister labeled with the appropriate color code and NIOSH/MSHA Certification.
c. Non-permitted respirators: Do not use single use, disposable or quarter face respirators.

2.3.3 Respiration Levels Required

Provide respiratory protection through determining the proper level of protection by dividing the expected or actual airborne fiber count in the Work Area by the "protection factors" given below. The level of respiratory protection which supplies an airborne fiber level inside the respirator, at the breathing zone of the wearer, at or below the permissible exposure limit (PEL) is the minimum level of protection allowed.

2.4 AIR PURIFYING RESPIRATORS

2.4.1 Negative pressure - half or full face mask type

Provide a sufficient quantity of respirator filters approved for asbestos, so that personnel can change filters during the work day. Require that respirators be wet-rinsed, and filters discarded, each time a person leaves the Work Area. Require that new filters be installed each time a person re-enters the Work Area. Store respirators and filters at the job site in the changing room and protect totally from exposure to asbestos prior to their use.

2.4.2 Powered air purifying - half or full face mask type

Provide a sufficient quantity of high efficiency respirator filters approved for asbestos so that workers can change filters at any time that flow through the face piece decreases to the level at which the manufacturer recommends filter replacement. Require that regardless of flow, filter cartridges be replaced after 40 hours of use. Require that HEPA elements in filter cartridges be protected from wetting during showering. Require entire exterior housing of respirator, including blower unit, filter cartridges, hoses, battery pack, face mask, belt, and cords, be washed each time a person leaves the Work Area. Caution should be used to avoid shorting battery pack during washing. Provide an extra battery pack for each respirator so that one can be charging while one is in use.

2.5 RESPIRATOR USAGE

Comply with ANSI Z88.2 - 1980 “Practices for Respiratory Protection" and OSHA 29 CFR 1910 and 1926. Regardless of Airborne Fiber Levels: Require that the minimum level of respiratory protection used be half-face air-purifying respirators with high efficiency filters.

2.5.1 General usage

Require that a respirator be worn by any person in a Work Area at all times, regardless of activity, during a period that starts with any operation which could cause airborne fibers until the area has been cleared for re-occupancy in accordance with this section.

2.5.2 Fit Testing

a. Initial Fitting: Provide initial fitting of respiratory protection during a respiratory protection course of training. Fit types of respirator to be actually worn by each individual. Allow an individual to use only those respirators for which training and fit testing has been provided.
b. Upon Each Wearing: Require that each time an air-purifying respirator is put on it be checked for fit with a positive and negative pressure fit test in accordance with the manufacturer's instructions or ANSI Z88.2 (1980).

2.6 DECONTAMINATION UNITS – GENERAL

Provide separate Personnel and Equipment Decontamination facilities. Require that the Personnel Decontamination Unit be the only means of ingress and egress for the Work Area. Require that all materials exit the Work Area through the Equipment Decontamination Unit.

2.6.1 Shower Head and Controls

Provide a factory-made shower head producing a spray of water which can be adjusted for spray size and intensity. Feed shower with water mixed from hot and cold supply lines. Arrange so that control of water temperature, flow rate, and shut off is from inside shower without outside aid.

2.6.2 Filters

a. Provide cascaded filter units on drain lines from showers or any other water source carrying asbestos-contaminated water from the Work Area.
b. Provide units with disposable filter elements as indicated below. Connect so that discharged water passes primary filter and output of primary filter passes through secondary filter.
    1. Primary Filter - Passes particles 20 microns and smaller.
    2. Secondary Filter - Passes particles 5 microns and smaller.

2.6.3 Shower Stall

For Wash Down Station, provide leak tight shower enclosure with integrated drain pan fabricated from fiberglass or other durable waterproof material, approximately 3' x 3' square with minimum 6' high sides and back. Structurally support as necessary for stability. Equip with hose bib, as specified in this section, mounted at approximately 4'-0" above drain pan. Connect drain to a reservoir, pump water from reservoir through filters to a drain or store and use for amended water. Mount filters inside shower stall on back wall beneath hose bib.

2.6.4 Sump Pump

Provide totally submersible waterproof sump pump with integral float switch. Provide unit sized to pump 2 times the flow capacity of all showers or hoses supplying water to the sump, through the filters specified herein when they are

loaded to the extent that replacement is required. Provide unit capable of pumping debris, sand, plaster or other materials washed off during decontamination procedures without damage to mechanism of pump. Adjust float switch so that a minimum of 3" remains between top of liquid and top of sump pan.

2.7 PERSONNEL DECONTAMINATION UNIT

Provide a Personnel Decontamination Unit consisting of a serial arrangement of connected rooms or spaces, Changing Room, Drying Room, Shower Room, Equipment Room. Require all persons without exception to pass through this Decontamination Unit for entry into and exiting from the Work Area for any purpose. Do not allow parallel routes for entry or exit. Do not remove equipment or materials through Personnel Decontamination Unit.

2.8 EQUIPMENT DECONTAMINATION UNIT

Provide an Equipment Decontamination Unit consisting of a serial arrangement of rooms, Clean Room, Holding Room, Wash Room for removal of equipment and material from Work Area. Do not allow personnel to enter or exit Work Area through Equipment Decontamination Unit.

PART – 3 EXECUTION

3.1 PERMISSIBLE EXPOSURE LIMIT (PEL)

8-Hour Time Weighted Average (TWA) of asbestos fibers to which any person may be exposed shall not exceed the following.

Time Weighted Average (TWA) = 0.1 fibers/cubic centimeter

Fibers: For purposes of this section, fibers are defined as all fibers regardless of composition as counted in the NIOSH 7400 procedure.

3.2 RESPIRATOR PROTOCOL

Instruct and train each worker involved in asbestos abatement or maintenance and repair of friable asbestos-containing materials in proper respiratory use and require that each worker always wear a respirator, properly fitted on the face in the Work Area from the start of any operation which may cause airborne asbestos fibers until the Work Area is completely decontaminated. Use respiratory protection appropriate for the fiber level encountered in the work place or as required for other toxic or oxygen-deficient situations encountered.

3.3 DECONTAMINATION ENTRY

Each time Work Area is entered remove all street clothes in the Changing Room of the Personnel Decontamination Unit and put on new disposable coverall, new head cover, and a clean respirator. Proceed through shower room to equipment room and put on work boots.

3.4 AIR MONITORING - TESTING LABORATORY SERVICES

3.4.1 Air monitoring

Provide work area isolation air monitoring to detect faults in the work area isolation such as:

Contamination of the building outside of the work area with airborne asbestos fibers, failure of filtration or rupture in the differential pressure system.

3.4.2 Failure and Contamination

Should any of the above occur, immediately cease asbestos abatement activities until the fault is corrected. Do not recommence work until authorized by the Owner's Representative.

3.4.3 Continuous monitoring

Conduct air monitoring throughout the course of the project.

3.5 STOP ACTION LEVELS

3.5.1 Outside Work Area

If any air sample taken outside of the Work Area exceeds the base line established below, immediately and automatically stop all work except corrective action. The Owner's Representative will determine the source of the high reading and so notify the Contractor in writing.

3.5.2 Isolation Failure Action

If the high reading was the result of a failure of Work Area isolation measures, initiate the following actions:

a. Immediately erect new critical barriers to isolate the affected area from the balance of the building. Erect Critical Barriers at the next existing structural isolation of the involved space (eg. wall, ceiling, floor).
b. Decontaminate the affected area.
c. Require that respiratory protection be worn in affected area until area is cleared for re-occupancy.

d. Leave Critical Barriers in place until completion of work and insure that the operation of the pressure differential system in the Work Area results in a flow of air from the balance of the building into the affected area.
e. If the exit from the clean room of the personnel decontamination unit enters the affected area, establish a decontamination facility consisting of a Shower Room and Changing Room at entry point to affected area.
f. Final air samples will be taken within the affected area, and if acceptable, continue with the abatement process of the work area.

3.5.3 Other Causes Failure Action

If the high reading was the result of other causes initiate corrective action as determined by the Owner's Representative.

3.6 STOP WORK

If the Critical or Primary barrier falls or is breached in any manner, stop work immediately. Do not start work until repairs to the barriers have been made and authorization from the Owner's Representative.

3.7 WORK AREA AIR MONITORING CLEARANCE CRITERIA

3.7.1 Contractor release criteria

The Asbestos Abatement Work Area is cleared when the Work Area is visually clean and airborne asbestos structure concentrations have been reduced to the level specified below.

To determine if the elevated airborne asbestos structure concentration encountered during abatement operations has been reduced to the specified level, the Owner will secure samples and analyze them according to the following procedures.

Sampling: PCM samples will be secured as indicated below.

Work Area Clearance: Upon meeting the clearance requirements, the work removal of the containment barriers will be authorized.

Aggressive sampling procedures as described below will be followed.

3.8 AGGRESSIVE SAMPLING

3.8.1 Sampling Criteria

All Air Samples will be taken using aggressive sampling techniques as follows:

a. Before sampling pumps are started the exhaust from forced-air equipment (leaf blower with an approximately 1 horsepower electric motor) will be swept against all walls, ceilings, floors, ledges and other surfaces in the room. This procedure will be continued for 5 minutes per 10,000 cubic feet of room volume.

b. One 20 inch diameter fan per 10,000 cubic feet of room volume will be mounted in a central location at approximately 2 meters above floor, directed toward ceiling and operated at low speed for the entire period of sample collection.

c. Air samples will be collected in areas subject to normal air circulation away from room corners, obstructed locations, and sites near windows, doors or vents.

d. After air-sampling pumps have been shut off, fans will be shut off.

3.9 SCHEDULE OF AIR SAMPLES

The number and volume of air samples taken and analytical methods used by the Contractor will be in accordance with the following schedule. Sample volumes given may vary depending upon the analytical instruments used.

3.10 PHASE CONTRAST MICROSCOPY

In each homogeneous work area after completion of all cleaning work, a minimum of 7 samples will be taken and analyzed as follows:

Collect samples on 25 mm cassettes with the following filter media:

PCM: 0.8 mixed cellulose ester in a cassette with a conductive extension cowl.

Location Sampled	Number of Samples	Analysis Method	Acceptance Criteria Fibers/cc.	Minimum Volume (Liters)	Rate LPM
Each Work Area	5	PCM	<0.010	2,000	0.5-10
or					
Each Room of	1				

Work Area	(5 min.)	PCM	<0.010	2,000	0.5-10

Analysis: Fibers on each filter will be measured using the NIOSH Method 7400 entitled "Asbestos and Other Fibers by PCM" published in the NIOSH Manual of Analytical Methods, Fourth Edition, August 15, 1994.

Fibers: Referred to in this section include fibers regardless of composition as counted by the phase contrast microscopy method used.

Release Criteria: Decontamination of the work site is complete when all of the following criteria are met:

All five of the air sample analysis results are less than 0.01 f/cc.

If any of the above criteria are not met, then the decontamination is incomplete and re-cleaning is required.

3.11 MONITORING

Continuously monitor and record the pressure differential between the Work Area and the building outside of the Work Area with a print record continuous manometer.

Relative Pressure in Work Area: Continuously maintain the work area at an air pressure that is lower than that in any surrounding space in the building, or at any location in the immediately proximity outside of the building envelope. This pressure differential when measured across any physical or critical barrier must equal or exceed a static pressure of 0.02 inches of water.

Accomplish the pressure differential by exhausting a sufficient number of HEPA filtered fan units from the work area. The number of units required will depend on machine characteristics, the seal at barriers, and required air circulation. The number of units will increase with increased make-up air or leaks into the Work Area. Determine the number of units required for pressure isolation by the following procedure:

Establish required air circulation in the work area, personnel and equipment decontamination units.

Establish isolation by increased pressure in adjacent areas or as part of seals where required.

Exhaust a sufficient number of units from the work area to develop the required pressure differential.

The required number of units is the number determined above plus one additional unit.

Determining the Air Circulation Requirements: Provide a fully operational air circulation system supplying a minimum of the following air circulation rate 6 air changes per hour.

Determine Number of Units needed to achieve required air circulation according to the following procedure:

Determine the volume in cubic feet of the work area by multiplying floor area by ceiling height. Determine total air circulation requirement in cubic feet per minute (CFM) for the work area by multiplying this volume by the air change rate and dividing by 60 minutes per hour.

Air Circulation Required in Cubic Feet of Air per Minute (CFM) =

$$\text{Volume of work area (cu. ft.)} \times \frac{\text{Number of air changes per hour}}{\text{60 (minutes per hour)}}$$

Divide the air circulation requirement (CFM) above by capacity of HEPA filtered fan unit(s) used. Capacity of a unit for purposes of this section is the capacity in cubic feet per minute with fully loaded filters (pressure differential which causes loaded filter warning light to come on) in the machine's labeled operating characteristics.

$$\text{Number of Units Needed} = \frac{\text{Air Circulation Requirement (CFM)}}{\text{Capacity of Unit with Loaded Filters (CFM)}}$$

Add one (1) additional unit as a backup in case of equipment failure or machine shutdown for filter changing.

3.12 TEMPORARY PRESSURE DIFFERENTIAL AND AIR CIRCULATING SYSTEM

3.12.1 Control access

Isolate the Work Area to prevent entry by building occupants into Work Area or surrounding controlled areas.

3.12.2 Visual Barrier

Where the Work Area is immediately adjacent to or within view of occupied areas, provide a visual barrier of opaque polyethylene sheeting at least 6 mil in thickness so that the work procedures are not visible to building occupants. Where this visual barrier would block natural light, substitute frosted or woven rip-stop sheet plastic in locations approved by the Owner's Representative.

3.12.3 Warning Signs

Provide Warning Signs at each locked door leading to Work Area reading as follows:

Legend	Notation
KEEP OUT	3" Sans Serif Gothic or Block
BEYOND THIS POINT	1" Sans Serif Gothic or Block
ASBESTOS ABATEMENT WORK	1" Sans Serif Gothic or Block
IN PROGRESS	1" Sans Serif Gothic or Block
BREATHING ASBESTOS DUST MAY BE HAZARDOUS TO YOUR HEALTH	14 Point Gothic

3.13 CRITICAL BARRIERS

Completely Separate the Work Area from other portions of the building, and the outside by closing all openings with sheet plastic barriers at least 6 mil in thickness, or by sealing cracks leading out of Work Area with duct tape.

3.13.1 Sealing Openings

Individually seal all ventilation openings (supply and exhaust), clocks, doorways, windows, convectors and speakers, and other openings into the Work Area with duct tape alone or with polyethylene sheeting at least 6 mil in thickness, taped securely in place with duct tape. Maintain seal until all work including Project Decontamination is completed.

3.13.2 Barriers

Provide Sheet Plastic barriers at least 6 mil in thickness as required to seal openings completely from the Work Area into adjacent areas. Seal the perimeter of all sheet plastic barriers with duct tape or spray cement.

3.13.3 Barrier Support

Mechanically Support sheet plastic independently of duct tape or spray cement seals so that seals do not support the weight of the plastic. Following are acceptable methods of supporting sheet plastic barriers. Alternative support methods may be used if approved in writing by the Owner's Representative.

3.14 PRIMARY BARRIER

Protect building and other surfaces in the Work Areas from damage from water and high humidity or from contamination from asbestos-containing debris, slurry or high airborne fiber levels by covering with a primary barrier consisting of two (2) layers of plastic sheeting on walls in those spaces with wall finishes. Areas with concrete walls may be protected with one (1) layer of sheet plastic. Carpeted and/or tiled floors will be covered by two (2) layers of 6 mil polyethylene, followed by a layer of corrugated cardboard to be covered with a final layer of 6 mil polyethylene on the top. Floor protection for concrete terrazzo will consist of a 6 mil drop cloth directly under work being performed. The non-slip stair runners will be covered with a layer of duct tape.

3.15 TEMPORARY ENCLOSURES

3.15.1 Area Preparation

Clean all contaminated furniture, equipment, and or supplies with a HEPA filtered vacuum cleaner or by wet cleaning, prior to being moved or covered. All equipment furniture, etc. is to be closely examined for determination of potential asbestos contamination. If visual evidence of contamination is observed, then appropriate decontamination procedures must be followed.

3.15.2 Cleaning

Clean All Surfaces In Work Area with a HEPA filtered vacuum or by wet wiping prior to the installation of primary barrier.

3.15.2 Work Area

The location where asbestos-abatement work occurs. It is a variable of the extent of work of the Contract. It may be a portion of a room, a single room, or a complex of rooms. A "Work Area" is considered contaminated during the work, and must be isolated from the balance of the building, and decontaminated at the completion of the asbestos-control work.

3.15.4 Isolation

Completely isolate the Work Area from other parts of the building so as to prevent asbestos-containing dust or debris from passing beyond the isolated area. Should the area beyond the Work Area(s) become contaminated with asbestos-containing dust or debris as a consequence of the work, clean those areas in accordance with the procedures indicated in this section. Perform all such required cleaning or decontamination at no additional cost to owner. Isolation shall include construction

of a wood stud and double sided plywood barrier at locations where directed by Owner's Representative or On-site Project Manager.

3.15.5 Removal and protection

Remove all removable furniture that has been designated uncontaminated by the Contract Documents or Owner's Representative. Also remove uncontaminated equipment, and/or supplies from the Work Area before commencing work, or completely cover with two (2) layers of polyethylene sheeting, at least 6 mil in thickness, securely taped in place with duct tape. Such furniture and equipment shall be considered outside the work area unless covering plastic or seal is breached.

3.15.6 Disabling

Disable ventilating systems or any other system bringing air into or out of the Work Area. Disable system by removing circuit breakers, by lockable switch or other positive means that will prevent accidental premature restarting of equipment.

3.15.7 Lockout

Lockout power to Work Area by switching off all breakers serving power or lighting circuits in work area. Label breakers with tape over breaker with notation "DANGER circuit being worked on". Lock panel and have all keys under control of Contractor's Superintendent or Owner's Representative.

3.15.8 Signage and notification

Lockout power to circuits running through work area wherever possible by switching off all breakers or removing fuses serving these circuits. Label breakers with tape over breaker with notation "DANGER circuit being worked on". Lock panel and have all keys under control of contractor's superintendent or owner's designated representative. If circuits cannot be shut down for any reason, label at intervals 4'-0" on center with tags reading, "DANGER live electric circuit. Electrocution hazard." Label circuits in hidden locations but which may be affected by the work in a similar manner.

3.15.9 Emergency exiting

At each existing exit door from the Work Area provide a means for emergency exiting.

3.16 DECONTAMINATION PROCEDURES

Require that all personnel use the following decontamination procedure as a minimum requirement whenever leaving the Work Area:

3.16.1 Garment disposal

When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.

3.16.2 Showering

Still wearing respirators, proceed to showers. Showering is mandatory.

3.16.3 Showering protocol

Care must be taken to follow reasonable procedures in removing the respirator to avoid asbestos fibers while showering. The following procedure is required as a minimum:

a. Thoroughly wet body including hair and face. If using a Powered Air-Purifying Respirator (PAPR) hold blower unit above head to keep canisters dry.
b. With respirator still in place thoroughly wash body, hair, respirator face piece, and all parts of the respirator except the blower unit and battery pack on a PAPR. Pay particular attention to seal between face and respirator and under straps.
c. Take a deep breath, hold it and/or exhale slowly, completely wet hair, face, and respirator. While still holding breath, remove respirator and hold it away from face before starting to breath.
d. Carefully wash face-piece of respirator inside and out.
e. If using PAPR: shut down in the following sequence, first cap inlets to filter cartridges, then turn off blower unit (this sequence will help keep debris which has collected on the inlet side of filter from dislodging and contaminating the outside of the unit). Thoroughly wash blower unit and hoses. Carefully wash battery pack with wet rag. Be extremely cautious of getting water in battery pack as this will short out and destroy battery.
f. Shower completely with soap and water.
g. Rinse thoroughly.
h. Rinse shower room walls and floor prior to exit.
i. Proceed from shower to Changing Room and change into street clothes or into new disposable work items.

3.16.4 Within Work Area

Require that personnel NOT eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the Work Area. To eat, chew, drink or smoke, personnel shall follow the procedure described above, and then dress in street clothes before entering the non-Work Areas of the building.

3.17 PROJECT DECONTAMINATION

Work of This Section includes the cleaning, and decontamination of all surfaces of the Work Area, and all furniture or equipment in the Work Area.

Start of Work: Work of this section begins with the cleaning of the Primary Barrier. At start of work the following will be in place:

Primary Barrier: Two layers of polyethylene sheeting on floor and one layer on walls in finished areas and as modified in unfinished spaces.

Critical Barrier: An airtight barrier between the Work Area and other portions of the building or the outside.

Critical Barrier Sheeting: Over lighting fixtures and clocks, ventilation openings, doorways, convectors, speakers and other openings.

Decontamination Units: For personnel and equipment in operating condition.

Pressure Differential System still in operation.

3.18 FIRST CLEANING

3.18.1 First Cleaning

Carry out a first cleaning of all surfaces of the work area including items of remaining sheeting, tools, scaffolding and/or staging by use of damp-cleaning and mopping, and/or a High Efficiency Particulate Air (HEPA) filtered vacuum. (Note: A HEPA vacuum may fail if used with wet material.) Do not perform dry dusting or dry sweeping. Use each surface of a cleaning cloth one time only and then dispose of as contaminated waste. Continue this cleaning until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces.

3.18.2 Removal

Remove All Filters in Air Handling System(s) and dispose of as asbestos-containing waste in accordance with Disposal of Asbestos-Containing Waste Material.

3.19 FINAL CLEANING

3.19.1 Final Cleaning

Carry out a final cleaning of all surfaces in the Work Area in a manner to ensure all residual material has been thoroughly removed. The use of clean disposable towels wetted and disposed of regularly when contaminated is required.

3.19.2 Contractor's Testing

At the completion of the above cleaning visually inspect all surfaces. Wipe surfaces with a dark blue or black towel and inspect for light colored residue. If residue is observed, re-clean the affected areas.

3.20 VISUAL INSPECTION

3.20.1 Inspection

After Final Cleaning Perform a Complete Visual Inspection of the entire Work Area including: all surfaces, ceiling, walls, floor, decontamination unit, all plastic sheeting, seals over ventilation openings, doorways, windows, and other openings; look for debris from any sources, residue on surfaces, dust or other matter. If any debris, residue, dust or other matter is found repeat final cleaning and continue decontamination procedure from that point.

3.20.2 Encapsulation

After completion of visual inspection and authorization by the project manager, perform encapsulation of substrate. Wait until encapsulant is dry on all surfaces prior to final air sampling.

3.21 REMOVAL OF ASBESTOS-CONTAINING MATERIALS

3.21.1 Secondary Barrier

Over the Primary Barrier, install as a drop cloth a clear 6 mil sheet plastic in all areas where asbestos removal work is to be carried out. Completely cover floor with sheet plastic. Where the work is within 10'-0" of a wall extend the Secondary Barrier up wall to ceiling. Support sheet plastic on wall with duct tape, seal top of Secondary plastic to Primary Barrier with duct tape so that debris is unable to get behind it. Provide cross strips of duct tape at wall support as necessary to support sheet plastic and prevent its falling during removal operations.

3.21.2 Installation

Install Secondary Barrier at the beginning of each work shift. Install only sufficient plastic for work of that shift.

3.21.3 Removal

Remove Secondary Barrier at end of each work shift or as work in an area is completed. Fold plastic toward center of sheet and pack in disposal bags. Keep material on sheet continuously wet until bagged.

3.22 WET REMOVAL

3.22.1 Wetting

Thoroughly wet Asbestos-Containing Materials to be removed prior to stripping and/or tooling to reduce fiber dispersal into the air. Accomplish wetting by a fine spray (mist) of amended water or removal encapsulant. Saturate material sufficiently to wet to the substrate without causing excess dripping. Allow time for amended water or removal encapsulant to penetrate material thoroughly. If amended water is used, spray material repeatedly during the work process to maintain a continuously wet condition. If a removal encapsulant is used, apply in strict accordance with manufacturer's written instructions. Perforate outer covering of any installation which has been painted and/or jacketed in order to allow penetration of amended water or removal encapsulant, or use injection equipment to wet material under the covering. Where necessary, carefully strip away while simultaneously spraying amended water or removal encapsulant on the installation to minimize dispersal of asbestos fibers into the air.

3.22.2 Misting

Mist work area continuously with amended water whenever necessary to reduce airborne fiber levels.

3.22.3 Thermal System Insulation

Spray with a mist of amended water or removal encapsulant. Allow amended water or removal encapsulant to saturate material. If a removal encapsulant is used, use in strict accordance with manufacturer's instructions. Remove job-molded insulation in chunks and hand place in a disposal bag. Do not drop to floor. Remove any residue on pipe or fitting with stiff bristle nylon hand brush. In locations where the pipe fitting insulation is removed from pipe with straight runs insulated with fibrous glass or other non-asbestos containing fibrous material, remove fibrous material as directed (6 inches from the point where it contacts the asbestos containing insulation).

3.22.4 Removal

Remove saturated Asbestos-Containing Material in small sections from all areas. Do not allow material to dry out. As it is removed, simultaneously pack material while still wet into disposal bags. Twist neck of bags, bend over and seal with

minimum three wraps of duct tape. Clean outside and move to Wash Down Station adjacent to Material Decontamination Unit.

a. Evacuate air from disposal bags with a HEPA filtered vacuum cleaner before sealing.
b. Active Electrical Equipment: Do not wet materials in the vicinity of active electrical equipment.
c. Restrict Access: Maintain existing access restrictions to areas with active electrical equipment. Allow access to area only to qualified tradespersons with prior experience in the installation and repair of involved equipment.
d. Warning Signs: Post warning signs at the entry point to active electrical equipment as required by OSHA or other applicable regulation.
e. Personnel: Work on active electrical equipment is to be performed by qualified tradespersons with prior experience in the installation or repair of the involved equipment. Restrict access to electrical equipment.
f. Electrical Isolation: Cover exposed conductors with a minimum 1/8" thick neoprene blanket draped over the conductor and surrounding area.
g. Protective Equipment: Provide workers working on or in the vicinity of active electrical with appropriate protective equipment including insulating gloves, boots, and non-conductive tools.
h. Hot Equipment: Do not wet materials on hot piping or equipment.
i. Restrict Access: Maintain any existing access restrictions to areas with hot equipment. Provide railing or other barriers to prevent accidental contact with hot equipment. Allow access to area only to qualified tradespersons with prior experience with the type of equipment involved.
j. Warning Signs: Post warning signs at hot equipment as required by OSHA or other applicable regulation.
k. Personnel: Work on hot equipment is to be performed by qualified tradespersons with prior experience with the type of equipment involved. Restrict access to electrical equipment.
l. Protective Equipment: Provide workers working on or in the vicinity of hot equipment with appropriate protective equipment including insulating gloves, boots, and coveralls.
m. Work Procedures: Perform removal work using "Localized Control of Material Release" and "Local Ventilation and Collection System" procedures described below.

3.23 DISPOSAL OF ASBESTOS-CONTAINING WASTE MATERIAL

Disposal Bags: Provide 6 mil thick leak-tight polyethylene bags labeled with three labels with text as follows:

3.23.1 First Label

Provide in accordance with 29 CFR 1910.1200(f) of OSHA Hazard Communication standard:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
BREATHING AIRBORNE ASBESTOS, TREMOLITE, ANTHOPHYLLITE, OR ACTINOLITE FIBERS IS HAZARDOUS TO YOUR HEALTH

3.23.2 Second Label

Provide in accordance with U. S. Department of Transportation regulation on hazardous waste marking. 49 CFR parts 171 and 172. Hazardous Substances:

RQ (ASBESTOS)
CLASS 9
NA 2212

In addition to this wording, a DOT Class 9 material label is needed.

3.23.3 Third Label

Contains the following information:

NAME OF WASTE GENERATOR
LOCATION AT WHICH THE WASTE WAS GENERATED

3.23.4 Hauling

All waste is to be hauled by a waste hauler with required licenses from all states and local authority with jurisdiction.

3.23.5 Containers

Load all asbestos-containing waste material in disposal bags or leak-tight drums. All materials are to be contained in one of the following:

Two 6 mil bags or

Two 6 mil bags and a fiberboard drum or

Wrapped in two layers of 6 mil poly sheeting with all seems sealed with 2" duct tape

3.23.6 Protection

Protect interior of truck or dumpster with a minimum of one layer of 6 mil poly sheeting.

3.23.7 Loading

Carefully load containerized waste in fully enclosed dumpsters, trucks or other appropriate vehicles for transport. Do not transport asbestos materials in open vehicles. Vehicles must be intrinsically balanced. Exercise care before and during transport, to insure that no unauthorized persons have access to the material.

3.23.8 Storage

Do not store containerized materials outside of the Work Area. Take containers from the Work Area directly to a sealed truck or dumpster.

3.23.9 Labeling

Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as asbestos-containing waste and dispose of in accordance with this specification.

3.23.10 Transporting

Advise the landfill operator or processor, at least ten days in advance of transport, of the quantity of material to be delivered.

3.23.11 Disposal Site

At disposal site unload containerized waste: At a disposal site, carefully unload sealed plastic bag from the truck. If bags are broken or damaged, return to work site for re-bagging.

3.23.12 Receipts

Retain receipts from landfill for materials disposed of.

3.23.13 Completion

At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to Owner's Representative.

END OF SECTION